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Air Conditioning & REFRIGERATION NEWS

Production Tools for Victory
AN INTERNATIONAL INSTITUTION ★ SUBSCRIBERS ALL OVER THE WORLD ★
Technical Governmental

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Inside Dope

By George F. Taubeneck

Shank's Mare
More Inflation
Russia a Partner
Get Set for Peace
Good Riddance
Republican Upsurge
Cabinet Reshuffle?
More Sea Thrills
Tax Prospects

Shank's Mare

More synthetic rubber is now being produced than can be processed into tires and other needed rubber products. Which may be a good thing in a way, because we're going to need plenty of the stuff for shoesoles. It begins to look as if shank's-mare locomotion will really have a revival in 1944.

To begin with, at least 1,000,000 pre-war automobiles will be off the road next year. Not until the last quarter of the year can there be any hope of replacements, if then.

In the meantime, tires will be scarce, repair parts will be in short supply, gasoline of poor quality, and mechanics will be scarcest of all. There is every reason to be pessimistic about trucks and truck tires (synthetic truck tires still aren't satisfactory), about buses and bus drivers, and most of all about individual automobiles.

If you live a long way from your work, as I do, you might as well prepare that bed in your office. No kidding, a national transportation breakdown seems to be in the cards for 1944.

More Inflation

Next pessimistic prediction: more inflation is ahead. We've already had a stiff dose of it. More is coming. It's election year, and the organized farmers, the organized workers—while working ostensibly at cross purposes—will continue to have a field day at the expense of "white collar men," capitalists, fixed-income folk, and the middle class in general.

The retreat will be slow. But sure.

The Democrats need votes. They're scared, and with reason.

Russia a Partner

Down in Washington they tell us that it is almost impossible to overestimate the tremendous victory Cordell Hull won at Moscow. Another way to look at it is to say that Molotov and Stalin were cooperative far beyond expectations.

It will be noted that China was included among the "Big Four." That constitutes a slap in the face to Japan, a "loss of face" that she cannot ignore if she has anything left to risk. It is a virtual invitation to attack Siberia.

Trade possibilities with Russia are also noted with pleasure by American export men. Here it is observed that Donald Nelson, who spent time with Stalin shortly before Hull arrived, must have done a particularly good job. Nelson may have certain shortcomings, but nearly everyone who has worked with him agrees that he is a diplomat of unusual stature.

Russia may provide one of our biggest postwar markets.

Get Set for Peace

Because of the explosive labor situation, public officials will continue to talk of a long war. As we've suggested in this column for months,

(Concluded on Page 6, Column 1)

Top Industry Executives To Lead Forum at ASRE Convention

PHILADELPHIA — With Norman Bel Geddes, industrial designer, B. C. Forbes, business publisher, and key executives of refrigeration companies scheduled to air their views on the future prospects of the refrigeration industry, the Forum is expected to be the high point of the 39th annual meeting of the American Society of Refrigerating Engineers to be held Dec. 7, 8, 9 at the Benjamin Franklin hotel here.

Among the industry leaders who will participate in the Forum are H. L. Andrews, vice president of General Electric Co.; C. E. Wilson, vice president of Worthington Pump & Machinery Corp.; J. S. Forbes, president of Superior Valve & Fittings Co.; F. S. McNeal, president of Universal Cooler Corp.; J. H. Ashbaugh, manager, merchandising division, Westinghouse Electric & Mfg. Co.; D. W. Russell, president of Airtemp Division, Chrysler Corp.; W. Paul Jones, vice president of Philco Corp.; Charles T. Lawson, sales manager of Kelvinator Division, Nash-Kelvinator Corp.; Cloud Wampler, president, Carrier Corp.; S. E. Lauer, president of York Corp.; and R. E. Cosgrove, vice president, Crosley Corp.

Another important feature of the convention will be a symposium on "Foods of Today and Tomorrow," to be held Dec. 8, at which Dr. D. K. Tressler will be moderator. Leading authorities on quick freezing, dehydration, compressed foods, warehousing, and similar fields will exchange information on the latest techniques.

And throughout the convention will be presented papers by A.S.R.E. members on timely subjects of a technical nature.

In addition to the regular business programs members and their wives and guests will be entertained by the convention committee and the Philadelphia Section of A.S.R.E., who have made extensive plans to provide social events.

The Philadelphia section plans an informal luncheon for the first day of the convention, Dec. 7, a special luncheon on Dec. 8 with an outstanding speaker as yet unannounced, restaurant entertainment on the evening of Dec. 7, and a luncheon for both men and women Thursday, Dec. 9, at the Franklin Institute, following which there will be inspection trips through the institute.

These events are in addition to the annual A.S.R.E. dinner-dance scheduled for Wednesday evening, which will be preceded by a cocktail party.

Entertainment of women guests is being especially stressed by the Philadelphia Section. Planned are trips to Philadelphia's many interesting historical spots, a luncheon bridge on Tuesday, Dec. 7, a fashion show and luncheon on Wednesday, Dec. 8, besides dinners on both Tuesday and Wednesday nights, and the Franklin Institute luncheon on Thursday.

Tentative program announced by the A.S.R.E. follows:

MONDAY, DEC. 6

8 p.m.—Advance registration.
8 p.m.—Meeting of Finance Committee.
8:30 p.m.—Meeting of Executive Committee.

(Concluded on Page 4, Column 1)

$4½ Million Mortgage Bonds Offered by York

PHILADELPHIA—The York Corp. of York, Pa., refrigeration equipment manufacturer, has placed upon the market first mortgage sinking fund bonds worth $4,500,000 to mature on Oct. 1, 1957 at the coupon rate of 4¼%, records of the Securities Exchange Commission reveal.

After payment of 3% commission to the underwriters and before certain expenses, York will realize $4,477,500 from sale of the bonds.

Upon receipt of the payment from the sale of the 4¼% bonds the company will receive a loan of $1,000,000 for a four-year term from the Philadelphia National Bank and the Pennsylvania Co. for Insurance on Lives Granting Annuities.

Brunner Adds Steinfeld To Engineering Staff

UTICA, N. Y.—H. K. Steinfeld has joined Brunner Mfg. Co., as assistant chief engineer.

Mr. Steinfeld comes to Brunner from the Baldwin Locomotive Works where he specialized in the design of heat transfer surfaces for Army tanks, such as oil coolers and radiators as well as the oil coolers and radiators of diesel-electric locomotives. He was also Materials Control Coordinator at Baldwin, supervising the Production Requirement Plan and the Controlled Materials Plan.

Born in Hamburg, Germany, in 1903, Mr. Steinfeld brings to Brunner 18 years of engineering experience in the refrigeration and allied fields. Graduated from Polytechnic Institute of Hamburg, Mr. Steinfeld embarked for the United States in 1928 after three years of practical experience in Germany. He became a draftsman for York Ice Machinery Corp. on industrial refrigeration installations.

(Concluded on Page 4, Column 5)

Arkansas Court Says Soldiers' Relief Act Has Limitations

LITTLE ROCK, Ark. — According to a decision handed down Oct. 25 by the Arkansas Supreme Court in a case involving repossession of an electric refrigerator, persons who became obligated under a conditional sales contract after the effective date of the Federal Soldiers' and Sailors' Relief Act and then went into the armed forces are not in all instances protected from fulfillment of the contract terms.

The high court affirmed a Saline Circuit Court ruling in which Orlando Ellis was denied damages for the alleged wrongful taking of an electric refrigerator by Reece Smithers.

The refrigerator was bought from Smithers Oct. 18, 1941, under a conditional sales contract, which gave Smithers the right to repossess without suit on default of payments. Ellis was inducted into the Army on June 12, 1942, at which time he allegedly owed three payments. He left the refrigerator in possession of his former landlord, T. S. Cate. Smithers regained possession by a replevin action instituted against Cate in a justice of the peace court.

Subsequently filing suit for damages, Ellis contended the action against Cate was void because of protection afforded by the soldiers' and sailors' relief act. The Supreme Court held that although the action was void, Smithers had regained possession of property to which he was entitled peaceably, under contract of sales, and no damage resulted from this transaction.

Pointing out that the contract was entered into a year after passage of the act, the Supreme Court ruled that no immunity could be claimed as repossession was made before the measure was amended to include all obligations made prior to the time a man enters service.

Chicago Plant To Add Greatly To '44 Freon Supply

WASHINGTON—Ratings have been granted Kinetic Chemicals, Inc., by the War Production Board, for the erection of a new plant to produce 2,000,000 pounds of "Freon-12" per month. This plant is to be located on the property of the Grasseli Division of the du Pont Co. at East Chicago, Ill.

Inasmuch as the enlarged "Freon" plant at Carney's Point, N. J. is now producing considerably in excess of its expected output, officials of the Chemical Division of the WPB believe that during the peak demand season next year, more "Freon" may be available than can be consumed.

This belief is bolstered by the evidence that the supply of "Freon" for Aerosol is outstripping the supply of pyrethrins, which may inevitably result in a necessary cut-back of the Aerosol program.

"Freon" supply will probably continue to be tight until sometime next spring, after which it is expected that all civilian needs as well as war demands can be filled.

Changes Announced In Order L-63

WASHINGTON, D. C.—Suppliers who are required to keep inventory records under Limitation Order L-63 no longer need file Form WPB-825 (formerly PD-336), WPB said in an amendment to the order issued Nov. 12.

Amendment of L-63 also provides that suppliers must keep records of total net monthly sales from stock and total inventory of supplies at the end of each month, but need not keep a separate record of each type of supplies.

Another change made by today's revision clarified the meaning of the fourth exemption from the order by substituting the phrase "replacement parts specially designed to fit only one model and brand of machinery or equipment and adaptable to no other use" for the phrase "functional replacement parts for machinery and equipment."

Following is the text of the changes:

"(e) **Records and reports.** Each supplier (other than those who are exempt under paragraph (b) (6) or (b) (7)) must keep an up-to-date record of his total net monthly sales of supplies from stock, and his total inventory of supplies at the end of each month. He need not keep a separate record of his sales and inventory of each type of supplies. A

(Concluded on Page 24, Column 1)

4th Quarter Production Of Iceboxes Scheduled

WASHINGTON, D. C.—A total of 61,694 domestic ice refrigerators may be produced by manufacturers in acute or stringent labor shortage areas during the fourth quarter of 1943, WPB announced Nov. 15 in an amendment to schedule V of Order L-7-C.

Schedule V as originally issued limited fourth quarter production of domestic ice refrigerators in areas which on Oct. 1, 1943 were classified as Group I or Group II labor areas by the War Manpower Commission, to the number actually produced during the third quarter. Today's amendment represents no change in these original provisions. It merely assigns exact quotas to each manufacturer in Group I or Group II in accordance with his third quarter production.

Nelson Promises Civilian Goods Fast as Possible

But Other WPB Officials Express Gloomy Views On Refrigerators

WASHINGTON, D. C. — Production of civilian goods will be permitted on an increasing scale as fast as military requirements allow the release of war plants and vital materials, Donald M. Nelson, War Production Board chief, told a Senate military sub-committee following his return from a visit to Russia.

Prime consideration will be given to civilian needs for refrigerators, washing machines, other household essentials, transportation equipment, and farm machinery and tools, he said.

On the other side of the picture, Office of Civilian Requirements and other WPB officials pointed to some reasons why the chances may be against a resumption of production of household electric refrigerators next year.

One immediate reason, for which there seems to be little chance of relief, is in the great demands of the war machine for fractional horsepower motors, of the type used in household refrigerators.

Another thought advanced is that even if Germany should be knocked out of the war by early '44, many manufacturers of refrigerators would still be called upon to produce at top speed for the War effort, because they are making equipment for the Air Force and Navy, which will require heavy production for the war against the Japs.

Third factor on which considerable of a question-mark is placed is that of manpower—and whether factory labor could be permitted to produce civilian goods.

Frigidaire Posts To Pedder and Markham

DAYTON—Appointment of J. F. Pedder and T. W. Markham to new positions with the Frigidaire Division of General Motors Corp. has been announced by L. A. Clark, assistant general sales manager.

Mr. Pedder has taken over the position of advertising and sales promotion manager of Frigidaire's appliance division, which is responsible for such peacetime products as household refrigerators, ranges, and water heaters. Mr. Pedder formerly was assistant advertising manager of this division.

Mr. Markham resumes his former post as advertising and sales promotion manager of the commercial and air conditioning division.

Ceramic Cooking Stove Demonstrated by Govt.

WASHINGTON, D. C.—The demonstration of a ceramic cooking stove model, developed by the Agamatic Range Corp., Cranford, N. J., in connection with the ceramic stove development program of the War Production Board was announced Oct. 30 by WPB. The demonstration took place at the National Bureau of Standards.

The model, the first to be built in the United States, is a compact, streamlined unit, equipped with two hot plates and two ovens. It contains only 80 pounds of metal, mostly cast iron. The pre-war all-metal model

(Concluded on Page 4, Column 4)

Retailers Must Plan Now to Meet Postwar Competition, Hotpoint Sales Head Says

NEW YORK CITY — Independent electrical appliance dealers and electrical appliance manufacturers must begin actual postwar planning now if they are to survive postwar merchandising competition, declared George H. Smith, general sales manager of Hotpoint, in the first of a nation-wide series of Hotpoint sales meetings held here recently.

"The first and by far the greatest threat to our present method of doing business is the chain operator," said Mr. Smith. "Make no mistake about it; if the chain operators develop their stores into mass outlets, there will cease to remain a place in the picture for the small independent retailers as we know them today. And if this business goes to large mass outlets, the basic functions of wholesaling will become a small factor in the major appliance business.

"We are not crying 'Wolf!' It can happen to us. If we are not prepared to meet this type of competition with proper plans, then we will go the way of the old time grocer, who stood by and watched the chain stores revolutionize the methods of merchandising food.

"If we are to survive, and I think we will, we must become merchandisers in a new sense of the word. We must select our retailers carefully and see to it that they are trained as merchandisers. We must help them with every function of their business. Above all, we must see to it that they are experts on the product lines they handle and the best-trained salesmen that we can possibly make them.

"It all sums up to this: Our distributors must become specialty major appliance distributors. They can no longer run the appliance business on the basis of an electrical supply business.

The executives, sales manager, and field salesmen cannot be order takers, they must be trained merchandisers and supply an adequate service to the end that retail outlets can successfully compete with the chain operator.

"We must promote and sell a complete line of products. We must be ready to do it immediately when products are available, and we must be completely trained and organized before the postwar consumer market opens up. If we wait to do this training until the buyers market has begun, it will be too late.

"To show that Hotpoint is sincere in devising plans which will assure retailers of their proper place in the picture during the postwar period, we have retained Charles Low, one of the greatest merchandising minds in this country, to write a series of bulletins which will be sent to any retailer upon request. Mr. Low has had years of merchandising experience in every phase of retailing and distribution, and has been retained by many large organizations to help them in their merchandising programs, particularly in developing proper retail methods."

75% War Work Means Plant Is Essential

WASHINGTON, D. C.—If 75% of a manufacturing concern's output is essential to the war effort, then the entire establishment may be classified as essential provided that such operations are inseparable from those which are classified as deferrable activities, regional directors of the War Manpower Commission were notified recently.

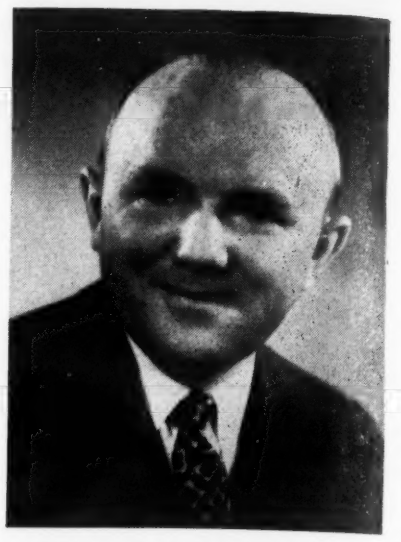
The ruling, issued in memorandum form, was drafted by the WMC in response to inquiries asking for a decision in so-called border-line cases. It specifies that a plant or factory should be designated essential only with reference to the essential portion of its production activities.

"Thus, if an establishment manufactures both wooden aircraft parts and wooden furniture and a different set of workers is engaged in each of these activities, the establishment should be designated as essential only with reference to the manufacture of aircraft parts; and only the manufacture of aircraft parts is subject to the provisions of the employment stabilization program," the memorandum explains.

"Whenever the essential activities of an establishment are not separate or distinct from those that are unclassified at nondeferrable, as is the case when the same set of workers is engaged in both seats of activities, the entire establishment should be designated as essential if approximately 75% of its activities are essential," this latest WMC ruling states.

Borgemenke & Bondurant Named To New Hotpoint Sales Posts

A. A. BORGEMENKE
Has been named regional sales manager for the eastern sales district of Hotpoint.



WALTER H. BONDURANT
Will manage Hotpoint's new central sales region.

* * *

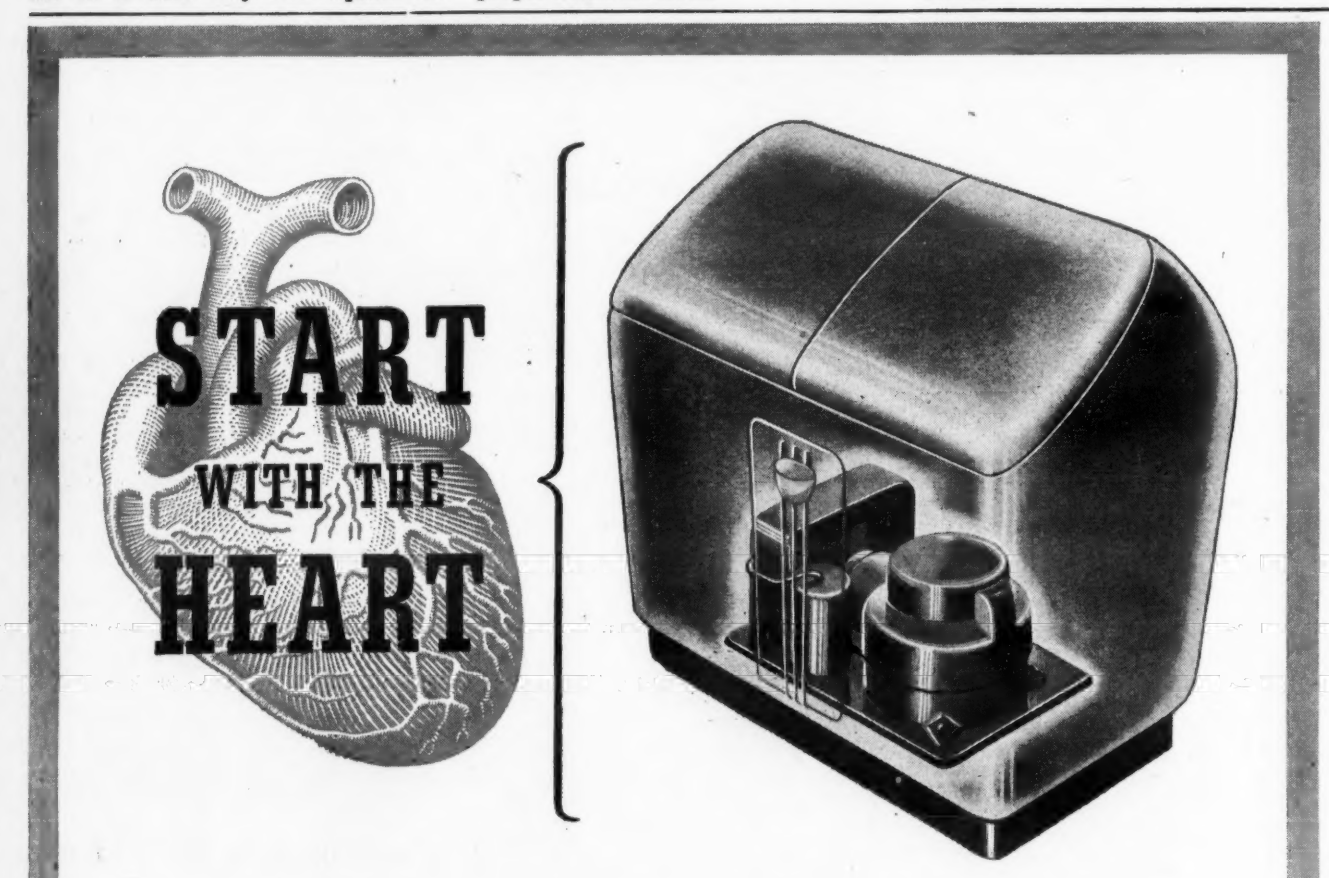
CHICAGO—A. A. Borgemenke and Walter H. Bondurant have been appointed regional sales managers to fill sales posts newly created by Edison General Electric Appliance Co. (Hotpoint), according to Geo. H. Smith, general sales manager.

Mr. Borgemenke, as sales manager of the Eastern region, will be in charge of the Boston, New York, and Philadelphia districts and will have his headquarters in New York City. Charles P. Myrick will continue as district sales manager at Boston.

Mr. Bondurant, with headquarters in Chicago, will supervise the Central region, comprising the Cleveland, Chicago, and Kansas City sales districts. L. E. Buxton remains as Chicago district sales manager and A. W. Peterson as Kansas City district sales manager.

Beginning with Hotpoint as a range and water heater sales specialist in Cleveland, Mr. Borgemenke became district sales manager in Philadelphia several years ago, later directing sales in the combined New York and Philadelphia districts.

Mr. Bondurant started as a Hotpoint sales representative in Chicago, and was later made assistant sales manager of the Appliance Division at the Chicago headquarters office. At the time of his newest appointment he was district sales manager of the Cleveland district.



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Much of the engineering work already is in advanced stages and manufacturing facilities, expanded for war, will be immediately available for Victory production. Universal Cooler is ready now with new product data and applications . . . invites inquiries regarding your post-war refrigeration requirements. Write today!

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SWPC Letter Indicates More Civilian Goods

WASHINGTON, D. C. — Official government indications that more civilian goods will be produced next year are seen in a letter being sent to all manufacturers by Albert M. Carter, acting chairman of Smaller War Plants Corp.

Present plans call for the production of about 700 civilian items "necessary to health, safety, and general welfare," with part of the manufacturing being handled by small firms with "open capacity which have manufactured these items in the past," according to Mr. Carter's letter.

"It is possible," the letter continues, "that the district office of the Smaller War Plants Corp. has already communicated with you concerning your possible participation in this program. If it has not, this letter is of vital importance to you. If you are a manufacturer of civilian items referred to above, contact your nearest SWPC office after making a definite appointment.

"We anticipate that a large number of manufacturers will take immediate advantage of the above information and as certain essential steps must be taken to qualify for participation in this program, it is necessary that you act promptly if you wish to participate," concludes the letter.

James Irwin Moves To Dairy Products Co.

NEW YORK CITY — James W. Irwin, who has been executive assistant to the president of the Monsanto Chemical Co., has been named to the executive staff of the National Dairy Products Co.

Mr. Irwin, who assumed his new duties today, will be assigned to administrative duties. Prior to his connection with Monsanto, Mr. Irwin had been with Frigidaire.

Spencer Becomes Asst. To Bendix President

HARRY L. SPENCER

* * *

SOUTH BEND, Ind.—H. L. Spencer, formerly manager of the Muskegon Heights, Mich. plant of Norge division, Borg-Warner Corp., has been appointed assistant to the president of Bendix Home Appliances, Inc. here, reports J. S. Sayre, Bendix president.

In 1926 Mr. Spencer started with Norge, joining the Detroit Gear & Machine Co., a Borg-Warner unit, after working with the Packard Motor Car Co.'s tool division, and Gar Wood, Inc.

He has been active in Muskegon civic and industrial circles. In September, 1940 he was appointed a member of the Committee on National Defense, and in September, 1942 became a member of the Muskegon War Manpower Advisory committee. Mr. Spencer has been a vice president of the Greater Muskegon Chamber of Commerce, and a director of the Century Club.

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WPB Gives Its 'View' on How Under P-126 A Machine or Coil Unit Can Be Replaced

CHICAGO—The official "view" on the sale of complete condensing units and low sides under the amended Order P-126 was recently obtained by President Harry Alter on behalf of the National Refrigeration Supply Jobbers Association, in the form of a letter from Rod Tait, Deputy Chief of the Refrigeration Section of WPB.

"Delivery may be made on condensing units and complete low sides on orders properly rated in accord with the terms of P-126," said Mr. Tait.

"You will note that from its terms, P-126 may not be used to replace 'usable' equipment or material. There are a very few instances, indeed, where the motor, compressor body, the base, the receiver, the condenser, the fan (if any), and the controls of a unit would all be 'unusable' likewise, there are relatively few cases where a complete low side composed of blower coils or other apparatus would be completely unusable.

"While Order L-38 does not state that the 'replacement' of a condensing unit may not be considered maintenance and repair, it also states that component parts may be delivered, therefore, if all of the component parts are unusable, all of the component parts might be obtained.

"There are circumstances which arise making the replacement of a condensing unit necessary in the performance of emergency service. For example: suppose a vital part of a condensing unit were to break and render the unit unusable until such part had been replaced, and, suppose that such part might not be obtained in time to permit the repair to be accomplished before loss of perishable food or other products had occurred; in such case, the entire condensing unit would to all intents and purposes, at the time, be unusable and it is intended that P-126 should be used to get the plan back into shape.

"If a crankshaft which could not be replaced were to break, consideration should be given to replacing the compressor body only, and if a compressor of another make could be made to fit on the base and to work with the condenser and receiver which might be entirely usable.

"If a machine so replaced is repaired through the agency or priority assigned under P-126, or any other Order of Regulation of WPB, such repaired machine should then be delivered only upon a properly rated order either for a new installation or in the performance of another service job.

"Any service agency applying ratings under P-126 to acquire a condensing unit or a low side or any other piece of apparatus for any other purpose than for the necessary repair of a refrigerating or air conditioning system, and any person who delivers such apparatus when he has reason to believe the material will not be used for repair is in violation of both P-126 and L-38. And any person who issues a false certificate under P-126 is subject to criminal prosecution by the Federal Government."

New Order Clarifies Plumbing Supplies

WASHINGTON, D. C.—To clarify and simplify restrictions on plumbing and heating emergency repairs WPB on Nov. 9 issued an amendment to Order P-84.

The revised order makes it clear that all orders accompanied by an OPA rationing certificate are assigned an AA-5 rating. Previous restrictions were interpreted to apply the AA-5 rating only to orders for rationed equipment which was to be used for replacement purposes.

List A of the order which names the items of equipment which are rationed by OPA Order 9A is brought up to date and the OPA regulation itself is designated as the only authoritative statement as to what items are rationed.

Persons wishing to obtain steel and wrought iron pipe and steel sheets for use in making repairs may no longer use the CMP symbol MRO (Maintenance, Repair and Operating supplies). Maximum permitted amounts of this material which may be purchased under CMP Regulation 4 have been increased sufficiently to meet requirements for maintenance and repair purposes.

Provisions requiring that replaced parts be turned in for salvage have been reworded to make it clear that replaced parts which can be repaired, other than on the job, should not be turned in for salvage.

The revised order makes it clear that the AA-5 rating may be used to obtain materials, equipment or parts needed to repair domestic cooking appliances, commercial cooking and food and plate warming equipment and commercial dishwashers as well as to repair or replace equipment defined by the order as plumbing equipment or heating equipment.

WPB Comments on New 'Freon' Order

WASHINGTON, D. C.—WPB has issued the following statement about Order M-28, "Dichlorodifluoromethane" as amended Nov. 12:

"The amendments are designed to release restrictions on four refrigerant compounds formerly covered by the order and at the same time tighten restrictions on deliveries of dichlorodifluoromethane, known to the trade as 'Freon-12.'

"In addition to the present prohibition on delivery of 'Freon-12' for air conditioning systems used for comfort cooling and a few types of refrigerating systems, a new restriction is imposed which prohibits deliveries until April 1, 1944, for any other system except where it is operated under one or more of the operating conditions specified in the order as amended.

"Under the order, suppliers of 'Freon-12' at the retail level are permitted in general to make deliveries for civilian uses only. Military agencies will handle their own distribution.

"The producer's deliveries will continue to be controlled by allocation directives, with monthly allocations dividing the available supply between military and civilian requirements.

"The amendment and revisions are expected to simplify greatly the paper work for purchasers, dealers, and WPB and at the same time prove more effective, from a conservation standpoint, than heretofore."

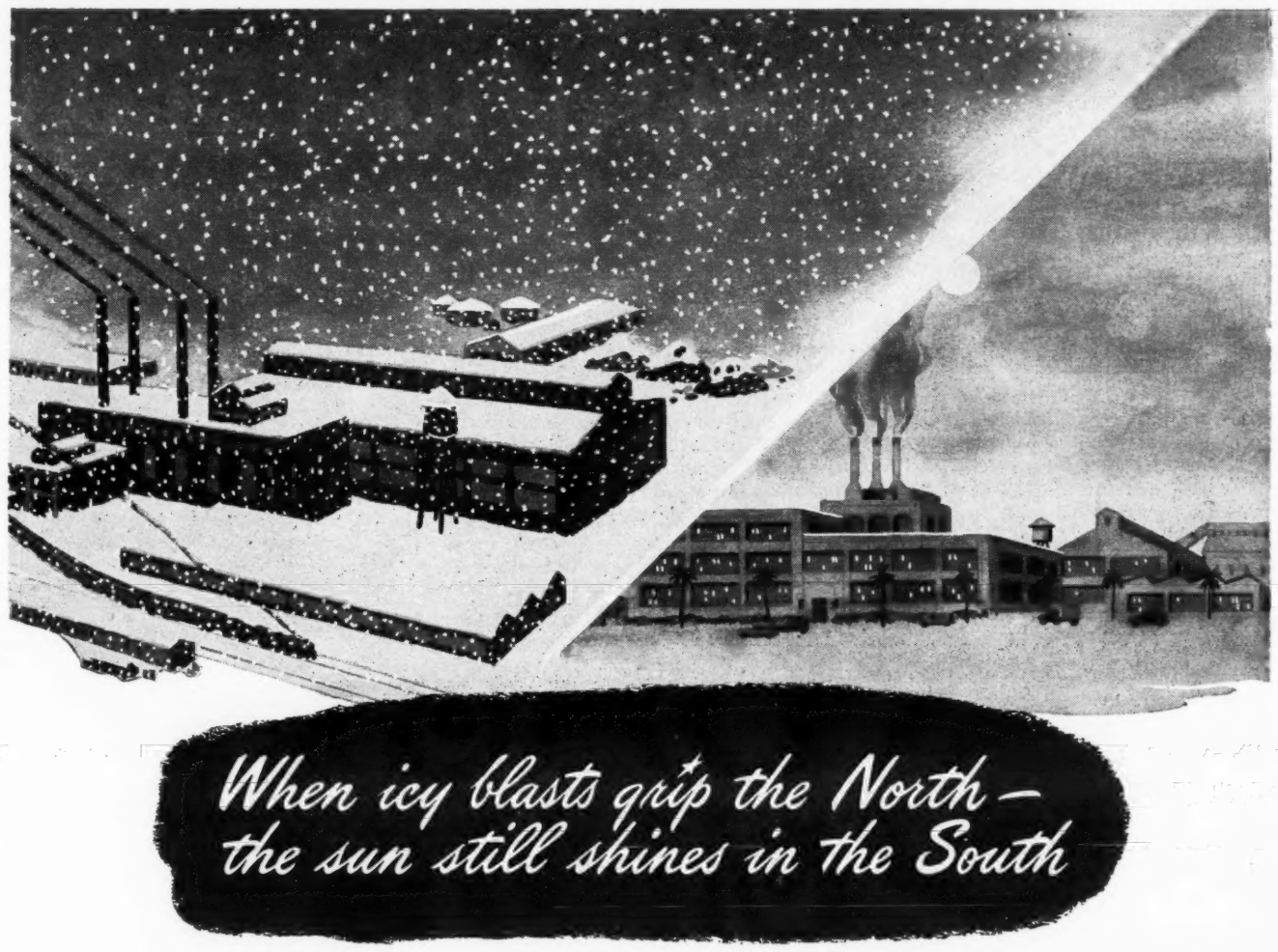
Davis Heads Price Board

BUFFALO—Joseph Davis, head of the Davis Refrigeration Co., Inc., has been appointed chairman of the Buffalo War Price & Rationing Board.

Chief Engineer

Refrigeration and air conditioning equipment manufacturer with over 25 years' experience in the industry requires the services of a chief engineer. This man must have had experience in design engineering of air handling and heat transfer equipment. Experience in compressor design not necessary. This is a real opportunity for a man desiring a permanent position with an old established manufacturer who is now expanding operations for postwar production. Good living conditions in a city of 75,000 population. Write giving qualifications, age, and nationality. All replies will be held strictly confidential.

Box 1492, Air Conditioning & Refrigeration News



When icy blasts grip the North — the sun still shines in the South

WITH war production geared to such a tremendous pace, the millions of intricate parts for engines, guns, planes and tanks must be made by many different factories located in every corner of the country. Bearings made in the winter cold of Detroit, or Boston, or Minneapolis, have to fit the delicately balanced crankshaft of an engine that may be made in sunny Mobile, or Dallas, or Los Angeles.

And parts made in Atlanta, or Memphis, or San Diego must fit some other part made in Buffalo, or Syracuse, or Seattle.

From North, South, East and West the endless procession continues, one part fitting with another until the finished implements of war are rolling on their way to the fighting fronts.

Without the help of air conditioning in these factories such accuracy and dovetailing of these far-flung manufacturing facilities would be extremely difficult.

Thus, the refrigeration and air conditioning industry helps in all-out war production by making possible the country-wide fabrication of all these precision parts and contributing in large measure to the vast amounts of material flowing from the Nation's production lines.

Detroit Expansion Valves, Solenoid Valves, and Controls have been the standard of the refrigeration industry for many years. A very broad line is available to take care of any job; large or small.

Use Detroit refrigeration products on your next industrial air conditioning job. Our engineering and research staffs are at your service.

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A.S.R.E. Announces Complete Program For 39th Annual Convention Dec. 7-9

(Concluded from Page 1, Column 3)

TUESDAY, DEC. 7

9:30 a.m.—Meeting of Sections Committee (to extend through luncheon).

10 a.m.—Meeting of Standards Committee.

10:30 a.m.—Meeting of Technical Committee.

10:30 a.m.—Meeting of Awards Committee.

12:15 p.m.—Informal luncheon open to all attendants at convention.

2 p.m.—**First Session**—A. B. Stickney, vice president of the A.S.R.E., presiding. After Charles R. Logan, president of the A.S.R.E., officially opens the convention, the following papers will be presented:

"Refrigeration Controls" by J. R. Vernon of Johnson Service Co., Milwaukee.

"Refrigeration Applications for Blood Plasma and Biologicals" by Lieut.-Col. Douglas B. Kendrick of Walter Reed Hospital, Washington, D. C.

"'Freon-22' and Its Application to Low Temperature Refrigeration Units" by J. W. Craig of Crosley Corp., Cincinnati.

The first session will be concluded with a vote of the A.S.R.E. members on the revised version of Circular No. 25, "Standard Methods of Rating and Testing Forced-Circulation Air Coolers for Commercial and Industrial Refrigeration."

7 p.m.—Dinner meeting for A. S. R. E. Publications Committee and associate editors of new Volume II of the "Refrigerating Data Book."

7 p.m.—Informal Group dinners for A.S.R.E. members and guests, with entertainment arranged by Philadelphia Section hosts.

WEDNESDAY, Dec. 8

9:30 a.m.—**Second Session** — John F. Stone, vice president of A.S.R.E., presiding while the following papers are presented:

"Absorption of Vapors—Some Practical Experience in Ventilation" by F. H. Munkelt of the W. B. Connor Engineering Corp., New York City.

"Refrigerating Design Problems in Marine Installations" by Prof. F. W. Hutchinson, University of California, Berkeley, Calif.

"Cost of Operation of Refrigeration Used for Air Conditioning" by Realto E. Cherne of Carrier Corp., Cincinnati.

At this session will be presented the Wolverine Award for the best technical paper published in the A. S. R. E. magazine "Refrigerating Engineering" during the past year.

12:30 p.m.—Luncheon—M. S. Lebair, chairman. Speaker to be announced later.

2 p.m.—Symposium of "Foods of Today and Tomorrow" with Dr. Donald K. Tressler as moderator. Speeches and speakers include:

"Domestic Freezing Cabinets" by James K. Noel of Victor Products Corp., Hagerstown, Md.

"Locker Plants" by Wayne Carver of Locker Publications Co., Des Moines, Ia.

"Consumer Needs In Food Distribution and Storage" by Miss Katherine Fisher, director of Good Housekeeping Institute, New York City.

"Dehydration and Food Compression" by B. E. Proctor, director, subsistence and packaging research, Office Quartermaster General, U. S. Army, Washington, D. C.

Other speakers who will participate in the symposium will be announced later.

4:30 p.m.—Meeting of Membership Committee.

7 p.m.—Annual Dinner-Dance, preceded by cocktail party.

THURSDAY, DEC. 9

9 a.m. — Refrigeration Industry Forum (to be held at Franklin Institute). Chairman, Charles R. Logan, A.S.R.E. president. Moderator, B. C. Forbes, publisher of "Forbes Magazine."

1. "Future Demands for Refrigeration and Air Conditioning."

Speaker: H. L. Andrews, vice president of General Electric Co.

Commentators: C. E. Wilson, vice president of Worthington Pump & Machinery Corp.; J. S. Forbes, president of Superior Valve & Fittings Co.

2. "New Equipment to Meet These Demands."

Speaker: Norman Bel Geddes, industrial designer.

Commentators: F. S. McNeal, president of Universal Cooler Corp.; J. H. Ashbaugh, manager, merchandising division, Westinghouse Electric & Mfg. Co.

3. "Distribution, Sales, and Promotional Methods for a Greater Industry."

Speaker: D. W. Russell, president of Airtemp Division, Chrysler Corp.

Commentators: W. Paul Jones, vice president of Philco Corp.; Charles T. Lawson, sales manager, Kelvinator Division, Nash-Kelvinator Corp.

4. "Our Industry, the Government and the Public."

Speaker: Cloud Wampler, president of Carrier Corp.

Commentators: S. E. Lauer, president of York Corp.; R. E. Cosgrove, vice president of Crosley Corp.

Following the forum, tellers will announce results of the A.S.R.E. election of officers and the new officers for 1943-44 will be inducted.

General sessions of the convention will be concluded with a luncheon at Franklin Institute. The A.S.R.E. Council will meet at 2 p.m., however.

Ceramic Stove Said To be Economical

(Concluded from Page 1, Column 5)

which it supplants weighed 1,085 pounds.

The stove is designed to be heated with anthracite or coke. Since it uses only about 10 pounds of fuel in 24 hours, it is very economical. If it is fired every 12 hours, it will be ready for use at any time.

Fuel consumption is kept unusually low primarily through the use of insulating material, but also through the ability of the refractory clay materials to retain and distribute the heat evenly throughout the ceramic body used to construct the stove. The interior of the stove is embedded in mineral wool, and each hot plate has its own insulated cover, to be let down when the plate is not in use.

AS EFFICIENT AS PRE-WAR METAL STOVE

Tests conducted by the Bureau of Standards indicate that the stove is fully as efficient as the pre-war metal model, and in some respects superior, the WPB report said.

Both the hot plates and the ovens can be heated to higher temperatures than those of the metal model. One of the hot plates can be heated to 725° F.—hot enough to bring two quarts of water to the boiling point in four or five minutes. The other hot plate, to be used for simmering, can be heated to 460°. The upper oven heats to 500°, the lower one to 240° F. Foods can be slow-baked in the lower oven for long periods of time without danger of burning.

The hot plates, made of cast iron with a ground surface, can be easily cleaned. They are large enough—9½ inches in diameter—to accommodate good-sized cooking utensils.

Special, flat-bottomed cooking utensils will be furnished for use with the ceramic stove when it appears in the stores and will be included in the price of the stove. As with electric hot plates, utensils that are not perfectly flat on the bottom will not give maximum efficiency.

A combination ash scoop and receptacle, with which ashes can be easily removed without spilling, and an automatic filler, for refueling, will also be furnished with the stove.

STARTED IN MARCH

The possibility of developing ceramic stoves to conserve metal and at the same time to utilize existing ceramic plants to the fullest possible extent was first investigated by the Clay Products Section of the Building Materials Division of WPB. In March of this year, the Office of Production Research and Development of WPB contracted with the Ohio State University Research Foundation for research and development work in connection with ceramic stoves.

The ceramic cooking stove model demonstrated is a direct outgrowth of the research and development conducted under this contract. In constructing its model, the Agamatic Range Corp., which expressed an early interest in the program, under authorization by OPRD has made full use of research results achieved to date.

Now that construction problems have been solved, production can begin soon. The Smaller War Plants Corp. is at present engaged in surveying production facilities of ceramic plants interested in producing ceramic stoves.

It is expected that the first ceramic stoves will reach the market around the first of the year. The purchase price has not yet been determined, but it presumably will be lower than that of the all-metal ones.

Steinfeld Appointed Brunner Engineer

H. K. STEINFELD

* * *

(Concluded from Page 1, Column 2)

In 1929 he joined the engineering staff of Carrier Engineering Corp., then in Newark, N. J. His work here was on the development of unit or package equipment for commercial and domestic air conditioning installations. He was one of the developers and designers of the first railway air conditioning unit installed in the diner—"Martha Washington" by the B. & O. R. R.

Following post-graduate work at N. Y. U., in heat transfer theory and laboratory he joined the De La Verge refrigeration division of the Baldwin Southwark Corp. as development engineer. In association with Chas. R. Neeson, Henry C. Heller and Henry Galson, Mr. Steinfeld was awarded the John Scott Medal Award by the City of Philadelphia, for the development of the first hermetically sealed compressor of more than fractional horsepower capacity and the first self-contained air conditioning unit for home and office as well as railway applications together with the successful application of the heat pump principle (reversed cycle).

In 1937 Mr. Steinfeld rejoined the development department of Carrier Corp. Here he developed a series of small high-speed compressors from ¼ to 5 horsepower for applications as condensing units in air conditioning, walk-in refrigerators, milk coolers, deep-freeze cabinets and locker plants.

REBUILDING SERVICE

Compressor Highsides, all makes like new. Westinghouse evaporators and Units. Dehydrators rebuilt with new felts and refilled with Silica Gel. Prompt service by trained mechanics. Satisfaction guaranteed and prices reasonable. Write for price list on your letterhead. Valley Refrigeration Service, P. O. Box 572, Harrisonburg, Va.

For: TRUCKS, LOCKERS, COOLERS, COUNTERS, CABINET CONVERSIONS, *use:*

KOLD-HOLD PLATES

KOLD-HOLD MFG. CO.
LANSING, MICH., U.S.A.

ARMY E NAVY
M&E EST. 1866
COMPRESSORS FOR EVERY COMMERCIAL PURPOSE
Write for catalog
MERCHANT & EVANS CO. PHILADELPHIA
Plant: Lancaster, Pa.

To G-E Distributors and Contractors:
Blood Plasma is the timely subject of the latest ad in the G-E series featuring wartime applications of air conditioning and industrial refrigeration. Appearing in Time, Newsweek, Business Week and 20 industrial papers, it will reach your prospects for new installations in war industries.

LIQUID LIFE

Not bullets, but *surgical shock*, has killed many a soldier in the wars of the past.

Shock is a breakdown of the blood circulatory system. Blood vessels contract. Circulation slows down, almost stops. If shock is too severe, death results.

Today, when a soldier is wounded, blood *plasma* is injected into his circulatory system. The plasma acts as a sort of pump primer . . . fills up the collapsed veins and arteries . . . starts the system working again. By thus counteracting shock, plasma saves lives and reduces suffering.

The whole blood you give at a Red Cross blood donor station goes through much processing before it gets to the front as plasma. At many points throughout the processing accurately-controlled *refrigeration* must be used.

To provide this refrigeration, General Electric has developed dependable refrigerating equipment that is more efficient, more compact and more flexible—to meet difficult war conditions.

This is only one of the many ways General Electric Refrigeration and Air Conditioning are helping to make a better world.

☆ BUY WAR BONDS ☆

General Electric Company, Air Conditioning and Commercial Refrigeration Divisions, Section 4311, Bloomfield, New Jersey.

Industrial Refrigeration by

GENERAL ELECTRIC

Hear the General Electric Radio Programs: The " HOUR OF CHARM," Sunday 10 P. M., E W T, N B C . . ." THE WORLD TODAY" News, Every Weekday 6:45 P. M., E W T, C B S

WPB Begins National Consumer Survey; To Study Storage of Refrigerators

WASHINGTON, D. C.—A nation-wide consumer survey is to be conducted for the Office of Civilian Requirements by the Bureau of the Census, starting this month, WPB Vice Chairman Arthur D. Whiteside has announced.

Census enumerators will visit 7,000 households to ask civilians about the availability of 115 types of goods and services used in homes and on farms.

The survey is designed as a scientific cross-section of the entire United States, embracing, in proportion, every geographic area, every income group and every type of worker. The farm survey will include not only every sized farm operation and every income group, but will be divided by crops according to relative size.

ANSWERS SOUGHT

This national sample, Mr. Whiteside said, is the culmination of a series of "spot check" surveys OCR has conducted in various sections of the country to determine conditions in specific areas and about specific products. The information obtained in the national survey will be collected and analyzed to find the answers to these questions:

1. To what extent are shortages and other consumer problems causing actual hardship?
2. What products now in short supply are most needed by the civilian population, and is the lack of any specific item to seriously affecting health and morale as to interfere with the productive efficiency of war workers, farmers and other civilians?
3. Is the available supply of consumer goods being distributed fairly?
4. What is the quantity of durable goods such as electric irons and washing machines now in the hands of consumers and what condition are they in?

WANT FACTUAL INFORMATION

As a result of these studies, OCR will have factual information from consumers for use in carrying out its function of maintaining an adequate supply of necessary civilian goods and services within the limit set by the war demand for manpower, manufacturing facilities and materials.

This survey and others to follow are being carried out by the Civilian Relations Division of OCR, under the directorship of Austin Grimshaw, Belmont, Mass., on leave from his position as assistant professor of industrial management at the Harvard Business School.

Among the goods and services about which information will be sought are the following:

LIST VI

Part A: Radio (excluding auto); electric iron; washing machines; bicycle.

Part B: Heating stove; cooking stove—gas; cooking stove—electric; cooking stove—other; mechanical refrigerator; ice-box (non-mechanical); sewing machines.

Part C: Vacuum cleaner; mattress; bedspring; studio couch, sofa bed.

LIST VII

Laundry service; dry cleaning service; shoe repair; watch and clock repair; automobile repair, except tires; tire recapping; tube repair; plumbing and heating repair; refrigerator repair; washing machine repair; sewing machine repair; radio repair; electric motor repair; electrical appliance repair (other); other repairs.

Canadian Dealers Hear of 'Good Bet' For Appliance Production Soon

TORONTO, Ont.—Canada may permit production of household appliances within a few months if material and labor conditions warrant, according to A. L. Brown of the Wartime Prices and Trade Board who recently addressed a conference here of the Electrical Appliance Dealers' Association, a section of the Retail Merchants' Association of Canada.

In high Canadian government circles "every consideration is being given to the resumption of certain civilian production at the earliest possible moment" that the labor and material status permits, revealed Mr. Brown, who is administrator of the electrical equipment and supplies division of the WPTB.

The probable near future resumption of household appliance production will not apply to radios, Mr. Brown stated, explaining that the demand for radio tubes by the armed forces was "astronomical" and was taxing the production capacity of Canadian firms.

Manpower, not raw materials, is the bottleneck in resumption of appliance manufacture in many instances, Mr. Brown declared, citing as an example dry battery cells, production of which is hampered by lack of men and girls.

The 25% excise tax which Canada imposed on radios, washing machines, and other appliances on Dec. 1, 1940, should be removed now, Mr. Brown added.

Edgar G. Burton, retail trade administrator of the WPTB, who also addressed the conference, told dealers that Donald Gordon, chairman of the board, is studying every possible avenue to obtain some quantities of critical materials for resumption of civilian production, and is being assisted by controllers of the Department of Munitions and Supply.

"It is the definite policy of the WPTB to remove restrictions on civilian production as soon as material and labor conditions warrant, and all restrictions now are being examined not only by member of the WPTB, but by members of the Industries Control Board, Department of Munitions and Supply," Mr. Burton said.

Production of consumer goods would help relieve pressure on price ceilings, believes Mr. Burton.

Kerotest Gets Second Star On Maritime Pennant

PITTSBURGH, Pa.—Second gold star has been added to the Maritime "M" pennant of Kerotest Mfg. Co. here for continued outstanding achievement in production of steel valves used in both cargo and Navy ships.

Kerotest received the pennant originally in August, 1942, and its first gold star in May of this year. Since May the company has increased by over 20% the number of its employes, according to W. G. Swaney, general manager.

Important war production can be halted through so simple an accident as the failure of a belt on air conditioning and refrigeration equipment. Little things can do a lot of harm.

Gilmer BELTS

That's why you'll find it wise to feature Gilmer Belts, and be set for replacement business and service jobs of this type. Rugged, long-lived, efficient Gilmers are good-will builders that bring you a profit. Order through your jobber . . . he's ready with Gilmers.

L. H. GILMER CO.
Tacony, Phila. 35, Pa.

HELPING YOU SELL
TOMORROW'S MARKET...TODAY

"**Indispensable** as a heating plant!"...that's Mr. Zumbro's view on post-war air conditioning. That will be *your* story, too...so Kinetic is placing it before the architects and engineers who read "Architectural Record"... men who, when the war is over, will again have powerful influence on questions of air conditioning and refrigeration equipment.

This is the fifth in a series of discussions by leading authorities of the future of air conditioning and refrigeration. Kinetic Chemicals, Inc., Tenth & Market Sts., Wilmington, Delaware.

KINETIC

BACK UP OUR BOYS WITH ANOTHER WAR BOND!

Looking Ahead in Air Conditioning with Frank R. Zumbro

FRANK R. ZUMBRO, *Chief Engineer of the Frick Company, Waynesboro, Penna., has been active in the Refrigerating Industry for 25 years. Mr. Zumbro was a contributor to the first of the Data Books published by the American Society of Refrigerating Engineers and served for years on the Board of Directors of this Society. He is the author of numerous technical papers.*

BEFORE THE WAR, air conditioning for human comfort had developed into a large industry. The pioneer work necessary to obtain its general acceptance had by that time become a matter of history. Air conditioning was adding to the comfort of many people, not only as a tool to better their efficiency, but also adding to the comfort and inspiration of the buyer of commodities. Large department stores, office buildings, and hotels, all had generally accepted it as a necessary addition to their services.

"Now the needs of warfare have brought forth many new applications of air conditioning, particularly in the industrial field. In extremely fine and delicate work, evenly maintained temperatures and humidities enable special processes to be carried on economically for the first time. Gage blocks, for example, are now being produced in quantities, with accuracies measured in millionths of an inch.

"AFTER THE WAR, one can visualize that air conditioning will be applied generally to homes, and to the majority of those buildings where people congregate either for pleasure or for work. In this respect it will doubtless become an architectural fixture just as indispensable as a heating plant.

"THE EFFECT OF MAN-MADE WEATHER conditions upon the human mind has not been thoroughly investigated. Nor does it need to be, since a person doing either manual or mental work is aware of the beneficial effects of a clean, comfortable atmosphere. The effect is immediately noticeable and creates a desire for more air conditioning.

"If the history of air conditioning in its total effect upon the production of materials useful to mankind could be written, it would prove a most enlightening story. Suffice it to say that this great branch of applied science has already opened a new day, and promises to add much as man marches toward a better and safer living."

REMEMBER—"Freon" refrigerants are non-toxic, non-explosive, non-flammable, non-irritating. They cannot harm food or clothing. By every measure they are the world's safest refrigerants. Kinetic Chemicals, Inc., Tenth and Market Sts., Wilmington, Del.

KINETIC
FREON
REG. U. S. PAT. OFF.
safe refrigerants
"Freon" is Kinetic's registered trade mark for its fluorine refrigerants.

PUBLISHED IN THE INTERESTS OF
AIR CONDITIONING AND REFRIGERATION

Inside Dope

By George F. Taubeneck

(Concluded from Page 1, Column 1)

this is merely the official "line." The news continues to have unmistakably optimistic portents.

You can expect, for example, that Hungary, Rumania, Bulgaria, Turkey, Finland, and possibly even Austria may soon be on our side. (We've suggested this eventuality before).

Germany is due to get the most terrific pounding any nation has ever suffered this winter, if the military clique — the 50 families of East Prussia which have provided Germany's generals for the last century —find themselves unable to eradicate the Nazis.

The Germans are logical people. They have now arrived at the page in their manual where it says: "Surrender and save the pieces." It is entirely likely that the Fifty Families of Prussia had representatives seeking audience at the Moscow conference.

No people has such respect for property as the Germans. Human lives don't seem to mean much to them, but property is sacrosanct. As their factories, their apartments, their homes (eight million Germans are now homeless) are progressively reduced to rubble, more and more of them are going to cry "Kamerad." They are gripped in the vise of Himmler's dread Gestapo now, but for how long?

Good Riddance

As for the Japs, high military opinion now is veering away from the long-war theory. MacArthur and Halsey are progressively forcing the analysts to the opinion that the Nips have third-rate equipment, dunce-like commanders, and inferior soldiers.

MacArthur and Halsey have been working seeming miracles on a "shoestring." Our High Command can conclude only that the Nips have been vastly overrated since their lighting conquest of Malaysia.

When you stop to think of the forces that can be brought to bear against third-rate Japan once Germany begs for peace—all the thousands of British, American, Russian, and German airplanes from the European and Mediterranean theatres; the combined British, American, French, Italian, and German fleets; the German submarines; the 25 million trained men who could be put into the field—all you can say is that Japan could catch the most terrific hell ever meted out to any nation in all history.

Virtual annihilation seems possible. And most people will say: good riddance!

Republican Upsurge

Continued gains by the Republicans in every election are said to reflect the public's growing impatience with regimentation. The American people are fundamentally individualists and always potential capitalists. They veer away from the norm when the wolf is at the door.

Those who are willing to bet that FDR, probably the smartest politician the country has ever had, will refuse to run for a fourth term because he sees the handwriting on the wall, may be in for an awakening, however.

The Democrats now know that they can win only with Roosevelt, and it is never difficult to convince a supremely confident man that he is still the People's Choice.

Surprise Democratic presidential possibility: Harold Ickes.

Cabinet Reshuffle?

The President will tip his mitt on Fourth Term intentions if he gets rid of some of the political liabilities in his cabinet, such as Morgenthau and Madame Perkins.

Morgenthau is Roosevelt's neighbor and old friend; Madame Perkins is a favorite of Mrs. Roosevelt. If he retains them in his cabinet it may indicate that he doesn't plan to run again. Previously he has felt that his own political fortune was "in the bag," and so he could keep whom he pleased in his cabinet.

If he does boot these old friends out, Winant (now Ambassador to England) is the heir apparent for the Secretaryship of Labor.

More Sea Thrills

Last time we presented excerpts from Sailor Henderson's exciting reminiscences of action off North Africa. Here is a concluding installment. We think you'll agree with us that some of our men-in-service are still good reporters, and are adding to the literature of this war. Proceed, Ed:

"When I finally went up on top-side that evening, it was dark. From the wing of the bridge, I looked out over where the transports were anchored, but all I could see was the outline of the beach and searchlights playing across the sky in the background. Finally my eyes became adjusted to the darkness so that I could see some of the ships outlined by the light from the searchlights. The stillness of the night was nearly deafening.

"However, this effect was abruptly changed by three rumbling explosions in succession. Star-shells filled the air like fireworks at a Fourth-of-July picnic. Three of our big ships had been torpedoed right before our eyes. I didn't even think that we might get it too . . . that the torpedoes had to go right by our ship to hit these others! Guess there was too much happening to think.

"The captain got our ship underway immediately and we proceeded to rescue men from one of the unfortunate ships. We headed for a big transport which seemed to be sinking rapidly. Her bow was under and her fan-tail was sticking up in the air like a grotesque monster about to plunge into the deep. A sinking ship is a tearful sight, but the oil-covered and injured men we rescued were more saddening yet. We gave up our bunks to them, of course, and spent the rest of the night chasing submarines.

"More action was in store for us . . . Casablanca was still holding out.

"If the story is ever told, it will be an interesting one; how the enemy submarine made the daring attack upon our ships, which were so heavily guarded by destroyers and a mine field. Probably the crew of that submarine never lived to tell of their adventures, for it was unofficially reported that a submarine was sunk that night by depth charge attack from one of the patrolling surface craft.

"After spending the greater part of the night rescuing survivors from the sea, we assisted in giving our ships protection until the morning light would relieve any imminent possibility of another underwater attack. For some reason or other, I had a strange feeling of security all that night. Of course, my senses were keyed to the excitement as well as to the equipment which I operated most of the time.

"Being underway, we were at least, a moving target for the submarines. We weren't stationary in that awful blackness; we weren't held down by the yoke of an anchor; we weren't helpless, like those mountains of steel and engineering grandeur sitting motionless and black in the night. Men were aboard who had seen their hell for that night. Surely, providence would not send them flying into the sea again.

"When daylight came, we received orders to secure our patrol position and stand in to the transport group to unload survivors. All of them were pleased to be transferred to larger ships. Some of them even appeared to dislike our old "red lead" can as much as to be shipwrecked, for they were all accustomed to the luxuries of the roomy transports and cargo ships. And many, many years at sea will not cure that inevitable seasickness which overcomes those who are not accustomed to riding a tin can.

"It was not long before we had all the survivors safely abroad one of the larger transports. It was then that we started an operation for which we were especially equipped. We swept areas near Fedahla and then swept a channel into Casablanca harbor.

"At Fedahla, we experienced an amusing, yet dangerous, air attack from one of our own planes. The nature of this particular operation required that we drag a large metal float well astern of the ship. Steaming along at a good many knots per hour, we gave this float the appearance of a submarine periscope. At least, the pilot of this particular scout bomber thought the object trailing us was a submarine.

"The plane came screaming in over our fan-tail and let the bomb loose on the 'submarine.' The explosion gave us quite a jar and quite a laugh. But it wasn't so funny when the plane came roaring right back to drop another bomb. The captain grabbed the biggest signal flag he could find on the bridge, and began waving it frantically, motioning the pilot to turn away. And he did . . . and certainly, the pilot must have been horribly embarrassed."

Tax Prospects

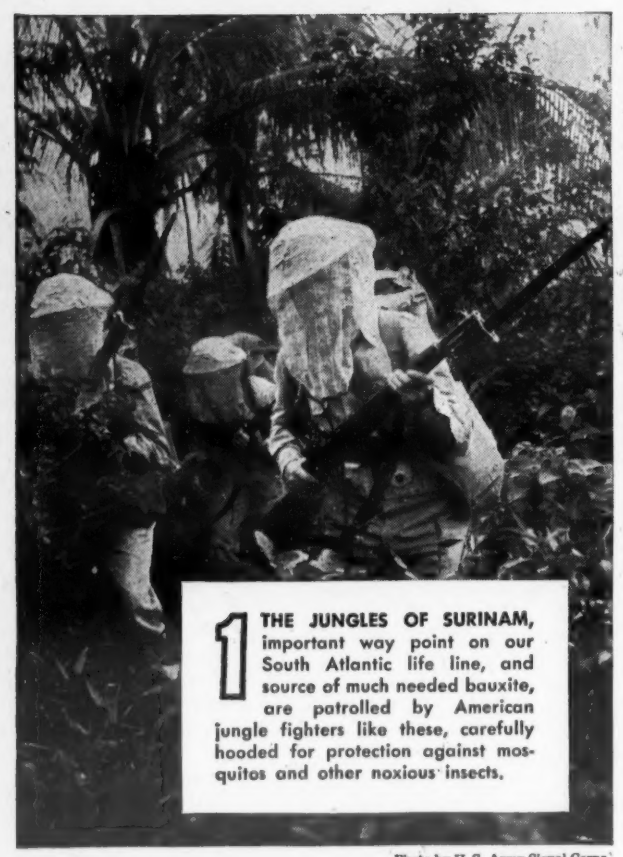
As noted here more than once, there'll probably be no major increase in your tax bill next year. Congress never likes to raise taxes in an election year. The Administration's proposals seem dead already.

Contrariwise, the sales tax doesn't seem to have the necessary votes, either. It should be observed, however, that extension of various excise taxes constitute a partial form of the sales tax.

It seems likely that Congress will concentrate on simplifying our tax returns, rather than on increasing the "take" to any great extent. About the only further complication now being considered is withholding by employers on a graduated basis according to the size of the income.

Congress is making much of the fact (in committee sessions) that America's per capita tax load is now greater than either England's or Canada's.

FAMOUS LIFE LINES



1 THE JUNGLES OF SURINAM, important way point on our South Atlantic life line, and source of much needed bauxite, are patrolled by American jungle fighters like these, carefully hooded for protection against mosquitos and other noxious insects.

Photo by U.S. Army Signal Corps

2 THE ARMY'S NEW M-5 HIGH SPEED PRIME MOVER, shown here pulling a 155-mm. howitzer, weighing 7½ tons, and carrying a driver and eight man gun crew, is completely equipped with "life lines" by Bundy—fuel lines, lubrication lines, and many other tubing parts.

Photo courtesy International Harvester Co.

WE NOW know by how narrow a margin the "battle of the supply lines" was won in the early days of the war. But it *was* won — and the flood of men and equipment will roll on until Victory.

After the war these same life lines will hum with an even heavier two-way traffic in food, raw materials and manufactured products of every description.

Bundy is looking ahead to that day —planning new uses for "life lines" of metal tubing, to replace the thousands of present wartime applications in tanks, trucks, jeeps, ships and planes.

Our engineers have already developed hundreds of new tubing uses —to strengthen structural parts, to transmit pressure, to carry refrigerants, fuels and lubricants. Our expanded plants will be well able to meet any demand.

Perhaps tubing can be used to improve your post-war products—or cut their cost. Write us, and we'll be glad to help in your planning.

Bundy Tubing Company, Detroit.

Acme Photo

THE ARMY'S FAMOUS AMPHIBIOUS JEEP, which carries five men and can ford a river, navigate a lake, or land through surf with equal facility, has most of its "life lines"—its brake tubes, fuel and lubrication lines, and many other parts—of Bundy Tubing. The same steering controls and the same propulsion carry it from land to water and back again.

Buy U. S. War Bonds
Get in Your Scrap

BUNDY TUBING

ENGINEERED TO YOUR EXPECTATIONS

BUNDYWELD double-walled steel tubing, hydrogen-brazed, copper-coated inside and outside. From Capillary sizes up to and including ⅝" O. D. This double-walled type is also available in steel, tin-coated on the outside, and in Monel.

BUNDY ELECTRICWELD steel tubing. Single-walled — butt welded — annealed. Available in sizes up to and including 2" O. D. Can be furnished tin-coated outside in smaller sizes.

BUNDY "TRIPLE-PURPOSE" tubing. Double-walled, rolled, from two strips, joints opposite, welded into a solid wall. Available in all Monel; all steel; Monel inside—steel outside; Monel outside—steel inside. Sizes up to and including ⅝" O. D.

HEALTHFUL LIVING THROUGH FROZEN FOODS

Ask Your Farmer Friends!

A "locker plant" for food freezing and frozen storage RIGHT ON THE FARM is the post-war dream of every modern farm family.

Tomorrow's farmer will KNOW about the advanced features of the BEN-HUR FARM LOCKER PLANT. Today's advertising will guarantee this ready market for you — for your volume selling at V-Day. Get your name on the list for "ground-floor" data and sales opportunities on the new BEN-HUR LOCKER PLANT.

TODAY-OUR FIGHTING MEN NEED *MORE WAR BONDS*

Remember

BEN-HUR

ARMY-NAVY "E" Awarded Ben-Hur for outstanding achievement in War Production.

FARM LOCKER PLANTS

BEN-HUR MFG. CO.

834 East Keefe Avenue, Milwaukee 12, Wisconsin

Technique of Refrigeration Anesthesia Continues Advance, Therapists Told

Dr. McElvenny Describes Results of Further Investigations, Tells of Use of Cooling Machine

CHICAGO — Surgeons who were skeptical of refrigeration as an anesthesia in amputation of arms and legs prior to 1942 are now rapidly becoming enthusiastic, declared Dr. Robert T. McElvenny, associate surgeon of Northwestern University's medical school, in describing gains made by this form of therapy before 500 specialists attending the recent twenty-second American Congress of Physical Therapy here.

Of special importance today, Dr. McElvenny pointed out, is the wide use on battlefields of portable freezing units to combat shock and hemorrhage and to retard infection when proper surgical aid may not be readily available.

Tracing the development of this comparatively new technique, Dr. McElvenny said, "Nothing seems to be wholly new in techniques. Techniques, and many truths, are often rediscovered, or modified, brought up to date, and become useful adjuncts in helping to deal with the problems of contemporary human existence.

Sensations Not Transmitted

"For centuries the effect of cold and heat on tissue has been known. The fact that a chilled extremity is painless and also cannot transmit sensory impulses has been known. This fact has been remarked on by surgeons participating in the Russian campaign years before the first World War. Any victim of frostbite during any century has been aware of the lack of sensation in the affected part while cooled."

Dr. McElvenny paid tribute for the modern development of freezing techniques in surgery to Dr. Frederick M. Allen of New York City. Dr. Allen, according to the speaker, advocated the cooling of human tissue to combat shock, pain, absorption of toxic material, and the advance of bacterial infection.

"The effects of cooling," explained Dr. McElvenny, "are to slow down metabolism and to produce an anesthesia of protoplasm. That this occurs is now beyond doubt, for many men have demonstrated this fact on many patients.

Use in Extremity Surgery

"We who deal largely with extremity surgery have had the best opportunity to put into practice Allen's principles. Cooling of limbs is of value in the treatment of diabetic or arteriosclerotic gangrene, in embolectomy in markedly septic limbs, and in severely traumatized and potentially infected limbs," he declared.

Experience has shown that once limbs are cooled for any prolonged period, the tissue reaction is marked when cooling is discontinued, Dr. McElvenny said. This tissue becomes red, swollen, and edematous, and if infection is present, its advance is much more rapid following cooling than it is in lesions similarly produced but not cooled.

"Carefully controlled work is now in progress by men in this country on the cooling of limbs having compound fractures. These limbs are intended to be saved, and by carefully controlled temperature to hold bacterial infection in abeyance but not to harm tissue, these workers are at present obtaining results that seem promising," revealed Dr. McElvenny.

"Cooling of wounds slows metabolism and consequently slows healing. A wound that is cooled heals in from 12 to 20 days, as contrasted to a similar wound healing in six to 10 days that has not been cooled," he said.

"During the years 1939, 1940, and 1941, I used shaved ice for cooling of extremities. This ice was applied directly to the limb to about two inches above the level of the lesion. During the past two years I have used a cooling machine made by Therm-O-Rite Corp. of Buffalo. This machine has been entirely satisfactory," Dr. McElvenny declared.

To describe the use of ice and its effects, the speaker quoted from a paper he had had published in a surgical journal regarding the treatment of gangrene of the foot in an elderly or poor risk patient.

No Pain, Little Bleeding

"The limb was surrounded with shaved ice up to the elected site of proposed amputation in the thigh. Soon after icing, all pain would disappear from the limb. Twenty-four hours after the application of the ice, a tourniquet would be placed tightly about the thigh just below the site of proposed amputation.

"Because absorption of toxins was prevented by this treatment, the patient would begin to improve. In four to five days his condition would be such that amputation could be done. The tourniquet would then be removed and the amputation would be done through the tourniquet site with no anesthetic except that provided by the pressure produced by the tourniquet. I watched an amputation in one of these cases and it appeared to be absolutely painless and was practically bloodless."

No Fatalities With Method

Since Dr. McElvenny's first case, he has "been cooling limbs and freezing limbs using no tourniquet whatsoever. In these patients the improvement has been marked in general condition. After a period of five to 10 days these patients have been able to stand an anesthetic, and amputation has been proceeded with. We have had no fatilities with this method."

Another case described by Dr. McElvenny involved a man who had a large tumor containing blood in the lower third of the thigh through which a "Kirschner wire" was passed. "This man developed an overwhelming infection of the tumor which ultimately involved the lower two thirds of the thigh. His fever on admittance was 104° and he was in such poor condition that the surgeons who saw him thought he was terminal.

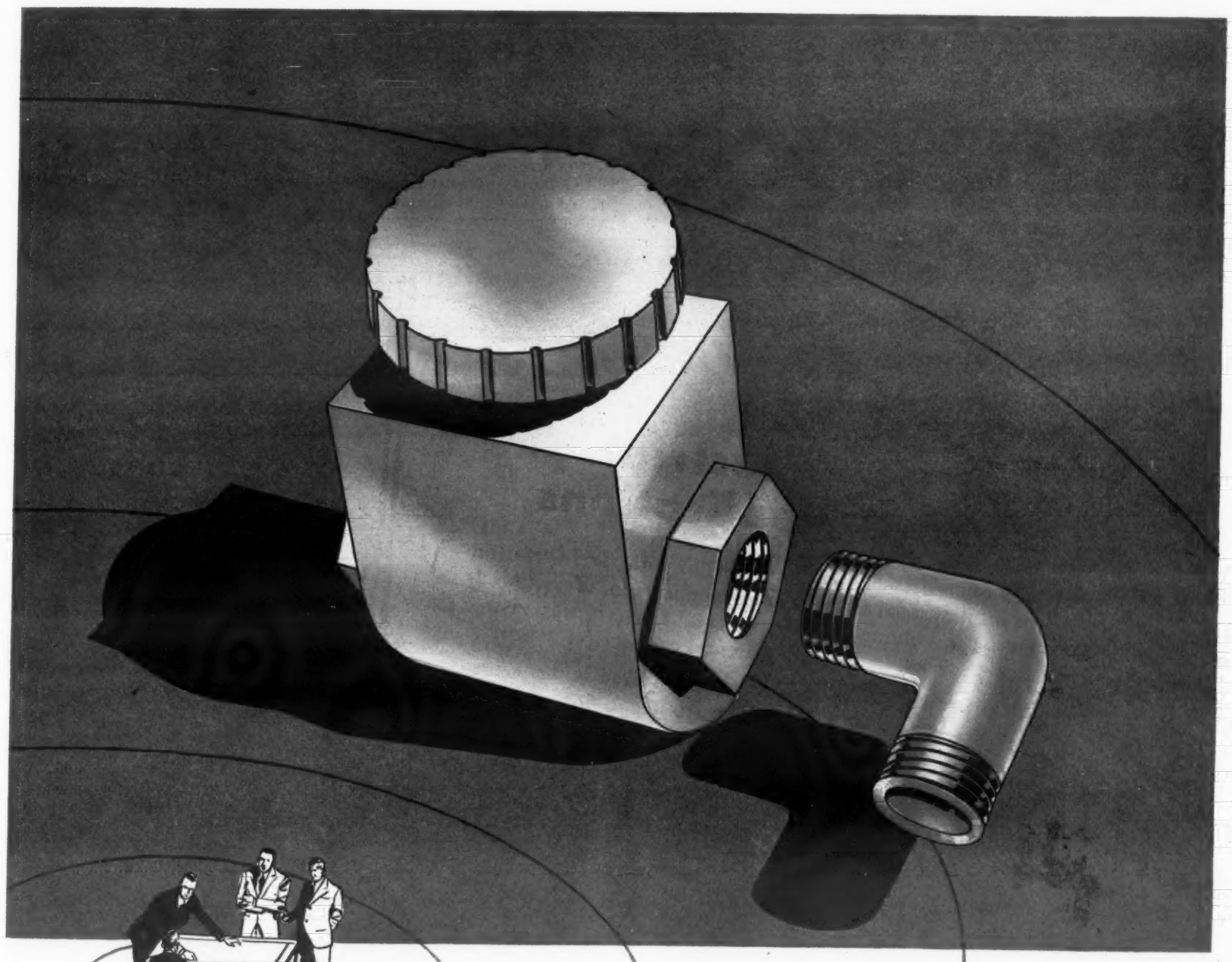
"This limb was frozen to approximately 17° F. Three hours after a cooling machine was applied, his condition had markedly improved. Twelve hours after the machine had been applied, the fever dropped and temperature remained normal. He was kept frozen for five days and at the time his condition was excellent and an amputation just below the hip was done. This man made a complete recovery."

Four Reasons For Its Use

Cooling is now used in surgery of the extremities for four chief reasons, Dr. McElvenny concluded: (1) As a protoplasmic anesthetic, (2) as a method dof abolishing shock, (3) to decrease or abolish absorption of toxin from infected limb, (4) to prevent an advance of bacterial infection.

Zimmer-Keller Named Detrola Co. Agency

DETROIT — Zimmer-Keller, Inc., Detroit advertising agency, has been appointed to handle national advertising of the Detrola Co.



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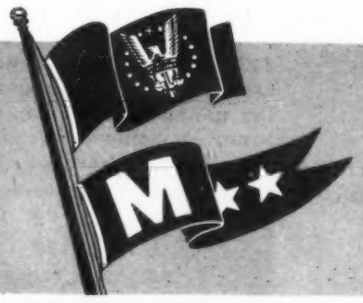
IN YOUR POST-WAR PLANNING *Today...*
FOR DEPENDABILITY *Tomorrow*

The *Dependability* of *Kerotest* Valves and Fittings, daily demonstrated today in active combat duty equipment and hundreds of other homefront refrigeration and air conditioning applications, is the result of many years of successful engineering design and experience in valve manufacture. ¶ That's why so many designers and engineers think of *Kerotest* in their plans for tomorrow's advanced air conditioning and refrigeration equipment.



KEROTEST'S "M" Pennant and Victory Fleet Flag — awarded by the U. S. Maritime Commission for outstanding marine service production — now carries its First Gold Star.

KEROTEST Valves
KEROTEST MANUFACTURING COMPANY
PITTSBURGH, PENNSYLVANIA

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DRINKING WATER — FILM PROCESSING
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53 Lexington Ave., Brooklyn 5, N.Y

National Refrigeration War Council 'Is an Effective Organization'

Wyllie Tells Fall Conference What Group Did For Industry

FRENCH LICK, Ind. — "It has been demonstrated that the National Refrigeration War Council is an effective organization that can get things done in a unique way, because of the unusual nature of the organization," declared John Wyllie, Jr., Temprite Products Corp., and chairman of the Council, in his talk on the Council's work before the recent Fall Conference of the Industry here.

"It is, however, up to the industry to tell the Council the problems that it should tackle," said Mr. Wyllie. "I believe if it is carried over into the postwar era it could perform many functions of profit to the industry.

Since its formation the Council has concentrated on the industry's No. 1 problem of service manpower and Mr. Wyllie said that "while finding a solution is a long-term problem, the Council has made considerable progress."

First direct result of the Council's activity was to get the telegram sent out from Maj. Gen. Hershey's office which granted virtual deferment to refrigeration servicemen from the middle of the summer to Oct. 1.

"It is worthy to note here," declared the Council chairman, "that this action came not as the result of 'Congressional pressure,' as many predicted would be the only way to accomplish it, but rather it came about by a truly representative group from the industry going to the government agency officials and impressing them with our story. They in turn got Gen. Hershey to suggest to the local boards that deferment of servicemen was necessary.

TRAIN REPLACEMENTS

"The next step was to find and train replacements to take the place of those who were necessarily drained off from the industry. A National Refrigeration Service Manpower Committee that really represents the service interests in all branches of the industry was named by the War Council. This Service Manpower Committee is now a part of the War Council, but it seeks and takes suggestions from the Council.

"The War Manpower Commission and other government agencies have indicated their interest in and approval of the purposes of this committee, and asked that one member of the committee be named to devote his full time to a program of training replacements. W. R. "Ray" Kromer was selected and is now Director of Training, National Refrigeration Service Manpower Committee, and Consultant, Bureau of Training, WMC.

"A program has been set up for the establishment of local committees wherever service manpower shortages are a problem. All factors in the industry are asked to lend aid to these committees, and the Council of Electric Operating Companies has volunteered to furnish men from local power companies who will help to carry the story to the field and to put local programs into effect.

"The government will pay for the time of the instructors, who must come from the industry, and text material will be furnished by local school educational systems with funds furnished by the vocational branch of the U. S. Department of Education.

"A major problem will be getting trainees, but it is up to the industry to do the job of recruiting these men. But even a failure to get a sufficient number of trainees might have a beneficial effect in demonstrating the seriousness of the shortage. Setting up the program is the one immediate activity that is important.

"Since last summer there has been something of a 'letdown' in the industry's interest in the problem of service manpower. But if a training program is not put into action a far worse breakdown in servicing facilities faces—not just the industry—but the public next summer."

4 Factors In Manpower Problem Outlined By Official of Washington Institute

BALTIMORE, Md.—Efforts of the Electric Institute of Washington (D. C.) to solve the refrigeration manpower program locally were described by J. A. Doyle, assistant managing director of the institute, at the Oct. 29 meeting of the Baltimore-Washington Section of American Society of Refrigerating Engineers, which also featured a discussion on "Automatic Controls for Air Conditioning and Refrigeration Equipment" by R. K. Hunter, manager of Johnson Service Co. here.

There are four essential factors in the manpower problem, said Mr. Doyle, who has been devoting much of his time to solving this problem, as has the institute, since the wartime curtailment of appliance production.

These factors are: (1) the employer and his responsibility; (2) the employe and his responsibility; (3) the public and their hopes; and (4) the draft board and its obligations, according to Mr. Doyle.

OBLIGATION OF EMPLOYER

Obligation of the employer is of utmost importance, Mr. Doyle declared in urging employers to file a form 42-A on every man of draft age, being sure that complete information is entered on the form.

Mr. Doyle outlined the training activities of the institute, which is conducting a school on refrigeration consisting of two classes of 10 men each, meeting two nights a week for 12 weeks.

Instructors for the classes are drawn from local refrigerator service companies, and thus provide practical training, Mr. Doyle pointed out. The students, upon completion of the course, will be hired by refrigerating contractors, but they are not expected to be expert refrigeration men, simply men equipped with a good ground-work in refrigeration, he added.

Predicting that the war will last until 1945 or possibly 1946 and that refrigeration personnel will still be needed, Mr. Doyle stressed the continued importance of training replacements. There should be no interference with the needs of the armed forces, however, he cautioned.

Increased efficiency on the part of men now in the industry would do much to alleviate the manpower shortage, he declared. If, in a five-man shop, each man could add one hour to his day through more efficient work, that shop should do at least 1,560 more jobs a year, believes Mr. Doyle. If there were 25 such shops in a city, such increase would mean the equivalent of 39,000 jobs, or 26 men added to the refrigeration industry, he said.

Mr. Doyle called special attention to the increased number of people in cities who are using old refrigerating equipment, and the former apartment house residents who are now living in their own homes, both of which factors contribute to the increased work and responsibility of service men.

Technical and engineering problems that the industry also faces today were described by Mr. Hunter in his talk on automatic controls, which was devoted chiefly to problems encountered in low temperature applications used so frequently in war work.

CONTROLS DESCRIBED

The various elements of control devices, such as thermostats, humidistats, expansion valves, and their functions were outlined by Mr. Hunter, who emphasized that a thermostat does not think, as some people seem to assume, but must be told what to do and be provided with some limits in which to do its work.

Engineers now are frequently confronted with problems of extremely accurate control where limits may be as close as a fraction of one degree, plus or minus, he said.

Mr. Hunter sketched on the blackboard a number of control diagrams of refrigeration systems, drawn largely from War Department installations, explaining the functions and ramifications of each.

Next meeting of the Baltimore-Washington A. S. R. E., originally scheduled for Dec. 9 in Washington, D. C., has been changed to Dec. 2, to avoid interference with the Philadelphia meeting of the national A. S. R. E.

Supplies of Aluminum Exceed War Needs

WASHINGTON, D. C.—Aluminum supplies in the fourth quarter are nearly 100 million pounds above needs of the war program, totaling 871 million pounds, the War Production Board has revealed.

So successful was the billion-dollar program to expand aluminum production that officials were confronted with an over-supply problem two months ago when aluminum scrap was at least 10 million pounds over requirements, WPB reported.

CURTIS Air Conditioning

For Wartime Industrial and Processing Applications

Despite a reduced civilian market, air conditioning and refrigeration equipment for industrial and processing applications is expanding rapidly. A new large volume of industrial and Government installations has become necessary due to Wartime production demands.

Proper temperature and humidity control is required in many tool rooms, in testing laboratories, and in precision gauging work; it aids employee efficiency in many black-out plants, in offices, drafting rooms, etc.

3 and 5 ton Packaged Type Air Conditioning Units

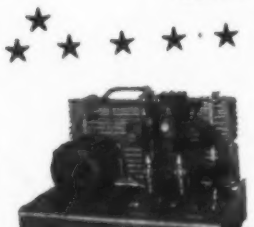
Here is essential, profitable business whose demands are met with the complete Curtis line. Packaged Type Air Conditioning Units —3 and 5 tons—refrigerating machines from ¼ to 30 tons capacity. Curtis Packaged Units offer these advantages—and more:

- Low first cost—economical operation
- Quick, easy installation
- Units cool, dehumidify, filter, and circulate air
- Modern, streamlined appearance
- Models for every requirement
- Adaptability for heating if desired

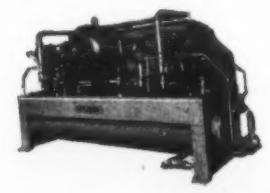
Today's industrial and processing market for air conditioning and refrigeration carries highest priorities. It's good business for progressive dealers everywhere. Write for complete details on the full line of Curtis equipment for this field.

CURTIS REFRIGERATING MACHINE DIVISION
of Curtis Manufacturing Company
1912 Kienlen Avenue, St. Louis, Missouri

Conserve Metals — CURTIS REFRIGERATION AIR CONDITIONING AND COMMERCIAL — *Buy War Bonds*



The Curtis line includes refrigeration machines from ¼ to 30 tons capacity. Every Curtis product is backed by 88 years of successful manufacturing experience, 24 years of building fine refrigeration equipment.



OASIS *Electric Water Coolers*

GUARD AGAINST "PARTIAL ABSENTEEISM" with

PROPERLY COOLED DRINKING WATER

Clear, clean, cool drinking water makes a world of difference in the morale and energy of every individual. It helps prevent thirst-fatigue—keeps employees from being "partial absentees!" Medical authorities emphasize this fact. That's why Oasis Electric Water Coolers are recognized "allies of production." They deliver invigoratingly cool water 24 hours a day—month after month—year after year—at minimum cost! EBCO's advanced production-line manufacturing methods assure top-quality construction in every detail—as shown by 29 years of pioneering leadership in the electric water cooler field. Submit your priority requirements to EBCO today!

The EBCO Manufacturing Company
401 W. Town St., Columbus, Ohio

Metz of Graybar Tells Why the Distributor 'Will Be Around' In Postwar Era

Don't 'Mourn' For The 'Passing' Distributor Until Someone's Found To Take His Place

By Herbert Metz, General Lamp and Lighting Sales Manager, Graybar Electric Co., Inc., and Chairman Post-war Planning Committee of National Electrical Wholesalers Association*

"Distribution" is a word that really encompasses the channel through which merchandise flows from the maker to the user. To cover that subject would take considerably more time than has been allotted to me, and also would presuppose considerably more information and background than I possess.

For the purpose of this short talk I will consider "distribution" to mean the wholesale or distributing function which is being efficiently, effectively and economically performed today by hundreds of organizations in all phases of industry. Inasmuch as my 30 years in business have been devoted to the distribution of electrical equipment, I must, therefore, narrow my talk to cover the distribution of electrical supplies and appliances.

Electrical Firm Typical

Basically, however, our business doesn't differ materially from that of other distributors. As a matter of fact, I think it can be said that it typifies better than any other our American system of distribution just as the electrical industry by and large represents a cross-section of all American industry.

It is interesting in this connection to note that there is no electrical section of WPB. There is a steel section, a copper section, etc. The reason there is no electrical section is that in the electrical industry there are represented over 50 other industries from steel to lumber. It is further interesting, and much to the point, to note that in the electrical industry the wholesaler is the generally accepted channel through which equipment and merchandise flow from manufacturer to user. Inasmuch as the electrical industry in general, and the electrical distributor in particular are so representative he can be properly used as an example of "distribution," as I intended to use him. With that as a background, let's proceed.

I have before me a copy of a recent issue of the Post-War Digest, in which there appears a very interesting paragraph under the following heading: "Changing Distribution Picture."

Old 'High Cost' Tune Again

Let me quote from this paragraph —"World of Tomorrow will dawn on a new American distributing system for consumer goods with every effort being made by manufacturers to reduce drastically the high cost of selling, now sometimes as much as 60% of consumer's dollar."

To one who has been in the business of distribution for any period of years this has a familiar ring, and starts him buckling on his armor, for most distributors know that with the hue and cry to "reduce drastically the high cost of selling" everybody starts pointing a menacing finger toward the distributor better known as "The Middle Man." For he is the villain in the piece: "The Whipping Boy of Business."

As long as I have been in business, I have heard of the problem of the Middle Man. Men who were old when I joined this company 30 years ago told me during my educational process that all of their lives in business the problem of distribution was always the problem of the Middle Man, and I assume their fathers and grandfathers before them went through the same thing.

I imagine, too, that my children and theirs will be making talks, better than this I hope, to your children and grandchildren at future marketing meetings, all to the point that when better channels for distribution are built the wholesaler will build them.

If we examine this problem of distribution or wholesaling, there are a few basic and simple facts that we should consider.

1. In the economic scheme of things we, of necessity, have a manufacturer who makes and a customer who buys merchandise. That merchandise must be taken from the man who buys. No matter what you do, what you call it, how you do it or how you call it that step must be taken care of. That's the function that we distributors perform.

You can put it down in the book that whether we as independent entities do it, or whether the manufacturer does it himself, that step must be in the picture. Insofar as consumer goods are concerned, the cost of those goods to the public could be simplified and the cost reduced if the dear public didn't want and demand so much service.

Who Keeps a Cow?

A quart of milk, for instance, would cost Mr. and Mrs. Jones very much less than they now pay for it if they had a cow in their garage. This is a perfect example of manufacturer direct to the consumer. Mr. and Mrs. Jones don't want to have a cow in their garage. They want to get up in the morning and find their milk in a nice shiny glass quart bottle, sterilized and pasteurized with a fancy petticoat tied around its top with a sign swearing that it was bottled yesterday. That sort of thing costs money and epitomizes what the public wants. Unless I misjudge the American public, that is what it is going to continue to want, and get.

2. I mentioned before "you can put it down in the book that whether we as independent entities do it, or whether the manufacturer does it himself, the distribution step must be in the picture." Talking won't justify any system of distribution, and I am not so fatuous as to think that anything I say here will be very long remembered or materially helpful in justifying our present form of wholesale distribution.

That system has survived because it is economically sound and for no other reason. We in Graybar, and may I say we have been in business

(Concluded on Page 10, Column 1)

*Talk given before AMA National War Conference at Cleveland.

RATHER ODD—

That anyone should be as cheerful about *not* getting a Bendix Home Laundry as this gal in the Bendix ads seems to be.

But here's how she explains it—in Life for November 8, Saturday Evening Post for November 20, McCall's for December and Better Homes and Gardens for December:

"I tried to buy a Bendix Automatic Home Laundry shortly after war began, but my dealer was sold out and the factory had converted to war work.

"So I *didn't* get one. And I felt pretty low about it till I learned that many a Bendix was serving boys in service. And that the one I *might* have bought, had I asked earlier, was probably 'in uniform'.

"May be it went in the Army. Or out to sea with the fleet. Or it *could* be one of the 33 I've heard of at the Coast Guard training Station, Manhattan Beach, N. Y. —washing, rinsing and damp-drying at the turn of a single dial for boys to whom washday ease and freedom mean even more than they do to me."

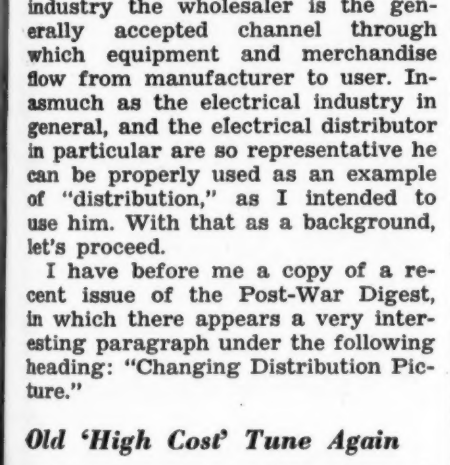
A lot of folks will read what that gal says. And it will help keep them in a mighty favorable attitude toward Bendix while it's off the market.

You'll cash in on that—when production can be resumed—for it's a foregone conclusion that the post-war demand will be for *automatic* "washers", with the Bendix principle the *only* one proved by years of successful service *outside the laboratory*.

This advertisement does not imply endorsement of our product by the Army or the Navy

BENDIX HOME APPLIANCES, INC.
SOUTH BEND, INDIANA

The people who pioneered and perfected the Automatic "Washer"



REACH-IN REFRIGERATORS
Model E — R105
Satin Finish White Enamel • All Wood
Width 85⅛" • Height incl. legs 73¼" • Overall depth 35" • Complete with ½ H.P. Compressor.
YOU NEED NO PRIORITY
to buy them, only to sell them.
HUSSMANN-LIGONIER CO.
HUSSMANN BLDG. • ST. LOUIS, MO.

Distributors Big Factor in Making Equitable Distribution of Scarce Goods in Wartime

(Concluded from Page 9, Column 5)

for almost 75 years, rest our case on one simple premise. We believe that our business is sound because we take the manufacturer's goods and deliver them to the customer cheaper, better and easier than the manufacturer can do it either himself or through any other channel. When the time comes when merchandise can be taken more economically from maker to user than we now do it, we will either have to change our system or get into another business.

Necessity for New Products

3. A system of distributors or wholesalers is absolutely necessary to provide a channel through which a manufacturer producing a new product outside his field can get that product quickly and cheaply to its market. For instance, let's assume that the laboratory of a chemical company develops an electrical gadget as a by-product. That product being electrical must be directed to a market which is neither contacted by nor familiar to the chemical manufacturer.

Today, by virtue of a well organized system of distribution made up of electrical wholesalers, this manufacturer can have this product in the hands of those for whom it was designed in a matter of days. What would the chemical manufacturer do if there was no such system of distribution — electrical or non-electrical?

4. One of the very practical proofs that the distributor is performing a necessary function is found in the fact that he is so very healthy and his life expectancy so high. Come good times or bad, hell or highwater, the wholesaler like little Charlie McCarthy keeps "buzzing right along." I indicated above that we have been in business 75 years. Some of those have been better than others, some have been pretty rocky, but we like to think of ourselves as a virile going concern today just as we were in 1869. What is true of Graybar is true of other electrical wholesalers.

In this connection, I have been doing a little private investigating, the results of which are more than interesting. The McGraw-Hill Co. publishes an annual directory in which are listed all of the accredited electrical wholesalers in America. Taking 1931 as a base, I find that there were 984 electrical wholesalers listed as doing business in this country at that time. In 1943, 12 years later, 588 of these same electrical wholesalers, or 60%, were still in business.

The Distributors Survive

I have also had checked the membership roll of the National Electrical Wholesalers Assn. According to their records, of the 358 companies who were members in 1931, 322 or 90% are still active both in business and in the Association. A very interesting and significant record.

In passing, let me point out that according to figures I have received from McGraw-Hill, 88% of all business concerns pass out every five years. The record of electrical wholesaling indicates than on average only 25% passed out in 12 years. It is interesting, too, to note also that while there were 984 electrical wholesalers listed in 1931, there were 1,386 listed in 1942.

In this connection, I also want to point out that in 1931, there were electrical wholesalers in 264 American cities. In 1942 there were electrical wholesalers in 457 cities. The interesting thing here is that the Electrical Wholesaling Industry is not only not static but that it is very active and alert in following the growth of the industry and of America making it possible for the manufacturer to have outlets in all strategic marketing centers as those centers develop.

The Wartime Record

Let's then take a minute to look at the wholesaler and the function he is performing in wartimes. To give you a direct picture of the wholesaler in times of stress like these, I should like to use the Graybar Co. as an example. The reason for this is, of course, that I am so close to the Graybar picture and further that after all we are typical of thousands of other distributors not only in the electrical but in the plumbing, hardware, steel and other industries.

In order to have definite records, or what is popularly known as "Case Histories" of our present function, we recently made studies of our business at each one of our 85 distributing houses, following orders from their inception to their completion. We took 171 out of thousands of examples and printed them in a leaflet which has been made part of a folder which we have prepared entitled "Streamlined for War." I would like to cite one or two examples which will give you a very direct and, I hope, interesting picture of what a wholesaler does in time of war.

At an important cartridge manufacturing plant, all cartridge loading machines had been equipped with safety devices except in one important spot. This required a solenoid device but obviously one which was explosion proof and none were on the market. This problem requiring first, creative engineering ability and second, the ability to get several manufacturers to make parts of the whole. Graybar-St. Louis did that job and on March 1, this device became available for every Ordnance plant in the U. S. It will save time and very possibly, save the lives of many skilled workers.

The Ozark Telephone Co. were asked to complete in 40 days; one mile of underground telephone cable, a complete outside telephone distributing plant, switchboard and central office telephone equipment including batteries and all accessory equipment. This rush job was for an Army airfield in the South. Ordinarily it would have taken three or four months to assemble the needed material, not counting installation time. Answering the emergency, Graybar-St. Louis had most of the material on the site within 10 days and kept the rest coming so that no time was lost in installation. The job was done on time.

Posted on Field Conditions

We, like other wholesalers, act as a contact for the manufacturers with the users of their material who are our customers. We have hundreds of salesmen across the country who are today acting as contact men with thousands of industrial customers. We can do a contact job of this kind that the average manufacturer could ill-afford even if he had the available manpower, because our salesmen are not handling one product or representing one manufacturer, rather they are selling 60,000 electrical products manufactured by some 200 to 300 manufacturers.

So, these salesmen of ours today call on these users of electrical equipment across the country, be they large or be they small, thus maintaining the identity of the manufacturer, by taking to these customers the manufacturer's story of his product. What is even more important, these salesmen bring back to the manufacturer the customer's story and keep him posted on field conditions, giving him valuable suggestions regarding his product and his market.

Then, too, we wholesalers are performing a function by and large we have never had to perform before. It is a very important function insofar as the manufacturer is concerned. We have today a new problem. It is called "allocation." There isn't enough merchandise to go around, and so the consumers and dealers across the country must be told that instead of the 100 units they are demanding we can let them have only three.

How Could Producer Allocate?

Imagine the problem the average manufacturer of consumers goods would have if it were necessary for him to directly allocate his merchandise to thousands of big and little dealers across the country. Imagine the correspondence he would have but beyond that imagine the tremendous amount of ill will that would be heaped upon his shoulders.

Today he has a very simple problem. He tells his wholesaler how much merchandise he may have, and from that point on it is the wholesalers' function to do the dirty work. The wholesaler, in other words, takes the allocation monkey right off the manufacturer's back, and perches it squarely on his own broad shoulders.

I could cite many interesting examples that we in Graybar perform in this direction if time were available, but you can believe me when I tell you it is quite a job. So much of a job in fact that the U. S. Department of Commerce has issued quite a sizable booklet entitled "Distribution of Scarce Goods—Wartime Practices in Allocating Goods to Retailers." If you have any interest in this problem, and I imagine you must have, I suggest that you get a copy of this booklet.

Then there is the problem of transportation and deliveries. You must know how acute it is. It is becoming more serious each day. It isn't hard to understand what a very important function the wholesaler performs in this direction. The manufacturer makes one shipment to the wholesaler who breaks up that shipment into smaller units for local distribution. Imagine the problem that would be faced today by the transportation companies, the manufacturers and their customers if all merchandise were flowing both in small and large quantities directly from the manufacturer to the consumer.

On Service, Manpower

Business today is also faced with the sales contact problem, the credit problem, the service problem and the manpower problem, each of which is important, each of which becomes daily more complicated, and each of which is being efficiently and effectively handled by the wholesaler for the manufacturer in a way that could not be done were the manufacturer to do it directly.

Then, may I add that all these functions are performed on a margin of profit so low that we are convinced, as you who know must be convinced, that the cost cannot be matched by any other existing distributing system. As I have indicated before, economics dictates this cost, and economics in the future as in the past, will determine whether or not the wholesaling function shall be a continuing one.

At this point I would like to take the time to introduce what I con-

(Concluded on Page 11, Column 1)

EXPORT LINES WANTED

Well known Puerto Rican Firm with several years experience in both domestic and commercial refrigeration sales and service, desires new domestic refrigerators connection. Can obtain a good share of the business in their territory with the right product and factory cooperation. Well financed. Wish to make complete arrangements before end of War. All communications will be kept strictly confidential.

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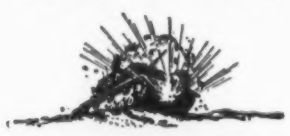
Air Conditioning & Refrigeration News, Detroit 2, Michigan.

TWO-MAN TORNADO!

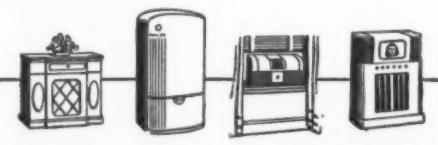
THE BAZOOKA . . . ANOTHER SPECTACULAR AMERICAN "SECRET WEAPON" . . . ANOTHER DRAMATIC STORY OF PHILCO AT WAR



TWO MEN AND A BAZOOKA . . . more than a match for sixty tons of steel! Yes, that's the latest story of American ingenuity and productive skill.

A single soldier carries and fires it, his teammate loads it . . . and 60 ton enemy tanks, concrete pill boxes, brick walls and bridges wither under the fire of its deadly rocket projectile. It's an amazing achievement of ordnance design, conceived and developed by the Ordnance Department of the United States Army. And it's another stirring chapter in the fascinating story of Philco at war.

The men and women of the Philco *Metal* Division, whose huge presses produce the metal parts of peacetime Philco radios, have played a leading part in the final perfection and production of the Bazooka. With their colleagues in the Philco *Radio* Division, they are turning out miracles of war equipment. After victory, their new knowledge and skill will bring you the newest achievements of modern science in radio, television, refrigeration and air conditioning under the famous Philco name.



Philco war research today will produce a greater Philco tomorrow. And, more than ever, the most valuable dealer franchise in the appliance field.

PHILCO CORPORATION

YOU'LL BE PROUD TO SELL *Sherer's*
ALL-INCLUSIVE PROFIT LINE
LIMITED NUMBER OF ALL TYPES AVAILABLE WITHOUT PRIORITY
For Immediate Shipment
The Sherer line of refrigerated display equipment is "tops" in construction and performance. *Write for franchise details.*
SHERER-GILLETT CO., MARSHALL, MICH.

Will Distributors Give Way To Some 'Super-Service' Station? Metz Thinks Not

(Concluded from Page 10, Column 5)

sider incontrovertible evidence from typical war plants over the country regarding the value that they place on the services of the wholesalers who supply them. Recently a questionnaire was sent by an independent research organization to 529 typical war plants located in 25 different cities across the country. These plants are producing machine tools, airplanes, engines, ships, explosives, etc. Some are large, some are medium, some are small.

The questionnaire asked three questions. It is interesting and quite significant I think that 165 busy wartime executives took the time and made the effort to fill in the answers to these three questions and sent them in. This is about 30% return which I am sure you will agree is extremely high. I will read you the three questions and give you the answers:

What the Manufacturers Said

Question No. 1—Is it an advantage to have a wholesaler in your local territory?

The answers were all in the affirmative.

Question No. 2—Does it simplify your purchasing to draw from one single source many products?

One hundred fifty-eight said "yes."

One said "no."

One did not answer this question.

Question No. 3—Do you feel that in the long run your saving in time and effort offsets the nominal fee charged by the wholesaler?

One hundred fifty-one said "yes."

Seven said "no."

Seven did not answer.

It surely can't be happenstance that practically every one of these executives, who ranged from president to engineer, went on record to the effect that the wholesaler renders a very important service to them. I am confident that the results of this questionnaire are typical of those that would be received were all industry canvassed.

And now, a word about the future. I want to assure you that we as wholesalers are looking ahead. We in Graybar are actively studying ways and means of meeting postwar problems. The National Electrical Wholesalers Association has a Postwar Planning Committee through which we as individual companies and as an association are trying to look ahead and plan for the future. We are studying markets.

We are trying to find remedies for old evils which are in our industry as they are in all industries. We are studying ways to more intelligently select and train our employes. We are looking for new things to sell—new markets to develop. We are getting ready for new industries as well as new devices. We are studying methods and checking and rechecking the physical layout of our offices and our warehouses.

We are keeping records of our employes in the Services, in order to be as sure as we humanly can that our boys and girls when they come back are placed quickly and effectively. We are trying to cooperate with every movement that has as its objective the development of postwar business and the efficient distribution of merchandise.

'Rumors' on Appliances

Up to now I have very largely referred to the wholesaler, using Graybar as an example, as a distributor of electrical supplies and associated equipment used primarily in industry.

There is another important phase of the electrical wholesaling business which covers the distribution of electrical appliances — washers, vacuum cleaners, etc., which are sold by and large through stores operated by dealers. It is around this appliance business that most of the arguments and discussions regarding distribution in the electrical fields are now taking place.

We hear considerable talk today about the wild scramble being made by so many manufacturers to get into this electrical appliance business, and the succeeding wilder scramble for distribution. We hear prophecies of new and interesting sales schemes through which merchandise will be taken directly to the consumer at costs fantastically low.

We hear a lot about the superduper service station in the postwar period where you will drive in at one end with an empty tank and a full pocketbook, and drive out the other end with a full tank, an empty pocketbook, and with a back seat full of gadgets from refrigerators to rat traps. I understand that the old type service station with its friendly pumps and even more friendly Jim and Joe are doomed. I don't think so! We Americans, like size and efficiency to be sure—we also like personalized service.

It is strange isn't it, or is it, that despite the growth of the chain store idea the corner drugstore and the neighborhood grocer are still going strong. The small specialty shop run by Susie Smith still is a flourishing institution. I mentioned the grocery store. I have a friend who is very close to the food situation. He tells me that the wholesale grocer who was doomed to extinction 30 years ago when the grocery chains really started to grow is, like the electrical distributor, still a very virile, active and lively institution. Following is a quotation from a letter I received from this gentleman in reply to a query I addressed to him:

"Notwithstanding the vicissitudes encountered by the wholesale grocer during the past 15 years, he seems either to have retained or regained his position. Those who have gone out of business through liquidation or consolidation appear to have been replaced in numbers and I think also in volume by newcomers in the field and by general growth in volume.

"The reasons appear to be, first that the retail grocer, the neighborhood store, with its service, is needed and wanted by the public and that store, in turn, needs the wholesaler; second, that the wholesaler renders services to the manufacturer, to the retailer and through him to the consumer that must be performed by someone, whether it be manufacturer, mail order house, chain store, peddler or pushcart, and experience has repeatedly demonstrated that the wholesaler, serving many manufacturers, can do the job more cheaply and efficiently than any one else. In short, the functions of distribution are essential to our economy. If the wholesale grocer goes out of business, the job he performs must be taken over by some one."

Someone Must Do It

I am not so fatuous as to think that there will be no changes in manufacturing, in retailing and in wholesaling postwar, but I do believe that whether it be electrical equipment, washing machines, vacuum cleaners, or tires, that merchandise must be taken from the man who makes to the man who uses or sells. This means, in essence, that a distributing function must be performed no matter under what name you might term it.

I believe further, that the efficient, alert and active distributor or wholesaler will continue to be as he is today, the channel through which the bulk of that merchandise will continue to flow, more effectively in some years than in others but continuing on, ever striving to be more efficient as the years go on.

In conclusion, let me say that the employes of Graybar own their company, the largest of its kind in the country. These employes for the most part have the bulk of their life's savings in this business. Some of them are young and some are older men and women who have grown gray in the service of Graybar and the business of distribution. Most of them are wise, few of them are gamblers.

The fact that they have their savings in this business and have no idea of taking them out is most conclusive proof that they have faith in it as an important cog in the business machine today and unlimited faith in its future. Their faith is built on the knowledge of over 75 years of Graybar background, and the successful experience of thousands of other similar distributing organizations.

Mutual Buying Syndicate Opens Chicago Office

CHICAGO—Mutual Buying Syndicate, Inc., 11 West 42nd St., representing 44 well known stores from coast to coast is opening a Chicago office in the Merchandise Mart.

"The Mutual has long regarded the Chicago market as one of great importance to their member stores," Mr. F. J. Bradley, president of Mutual, said. "Members of the firm and New York staff buyers have been covering Chicago market at frequent intervals for many years. Buying meetings in furniture, housewares, and other home furnishings lines have always drawn very large attendance during the Chicago market weeks. The Midwestern market city has grown and developed to such an extent in recent years that the Mutual decided to maintain a permanent staff in that city in order to bring our organization in closer touch with the manufacturers in that region."

IN THE POSTWAR ERA CAN I HAVE A STORE THAT SELLS?
IS MY LOCATION GOOD FOR POSTWAR BUSINESS?
WHAT IS THE SECRET OF GOOD STORE ARRANGEMENT?
HOW CAN I ADVERTISE AND BRING THOSE CUSTOMERS IN?

HOW RETAIL MERCHANTS CAN PLAN NOW FOR BETTER POSTWAR BUSINESS

NOW is the time to plan for a better future in the merchandising of electrical appliances.

Hotpoint is doing something about that future *now!* We have in preparation a series of bulletins entitled, "Planned Electrical Merchandising." They are full of ideas and information that will give you a big edge in the postwar era.

These bulletins are about *your* business. *Your* store *your* customers right in *your* community — not about Hotpoint products. They are loaded with practical, field-tested suggestions that will help any merchant improve his business volume.

Arming For Peace

The retailer who is best prepared with sound knowledge about store location, the secrets of display, making customers buy, and such, will take postwar business like the Yanks took Tunisia. It is the purpose of Hotpoint's new service for retailers to provide you with this ammunition.

Hotpoint is not waiting till the war is over to put this extraordinary material into your hands. The first issue of "Planned Electrical Merchandising" is ready now. This is tailor-made for postwar retail planning—with it you can plan now for better postwar business. Be sure to get the first issue of "Planned Electrical Merchandising." See how easy the ideas are to understand. Note how readily they can be applied. Observe how the use of this material can put you in the front ranks of the postwar march to greater business.

Write today on your own letterhead and ask for your copy of "Planned Electrical Merchandising."

Edison General Electric Appliance Co., Inc.
5632 West Taylor Street, Chicago 44, Illinois

The First Six Bulletins in the Hotpoint Series Unlock Many Secrets of Successful Merchandising

1 *"Plan Now for the Appliance Store that Will Help You Sell"*
2 *"How to Choose a Good Location for an Appliance Store"*
3 *"Planning Your Type of Electrical Store"*
4 *"Stocking an Electrical Appliance Store"*
5 *"Floor Arrangements Which Help You Sell"*
6 *"Advertising to Bring Them into the Store"*

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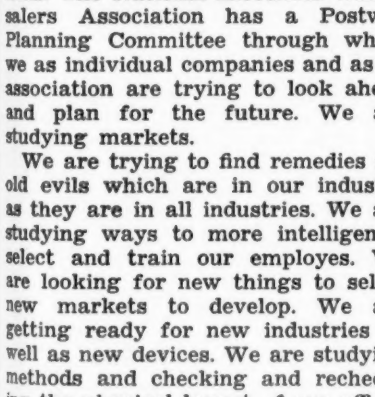

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NOVEMBER 22, 1943
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They'll Do It Every Time

By Jimmy Hatlo

ER--MR. BLUFFER--- YOU KNOW I WAS MARRIED LAST YEAR-- AND-UH--- NOW WE ARE EXPECTING A NEW HEIR--- I-UH- THOUGHT MAYBE YOU COULD GIVE ME A LITTLE MORE SALARY---
ABSOLUTELY NOT! AFTER ALL, RUTFOOT, THE ONLY REASON WE KEEP YOU ON THE PAYROLL IS BECAUSE YOU'RE A MARRIED MAN! THERE ARE DOZENS OF MEN EAGER FOR YOUR JOB!
THE WAY THE BOSS TOLD IT TO RUTFOOT HE WAS ABOUT AS VALUABLE TO THE FIRM AS LAST YEAR'S CALENDAR—
Copr 1943 King Features Syndicate, Inc. World rights reserved.
AND THEN HIS DRAFT BOARD SENT RUTFOOT A LITTLE LOVE NOTE. MY-MY- HOW HE HAS IMPROVED—
YOU'RE RUINING MY BUSINESS! YOU'RE DRAFTING ALL MY BEST MEN! AND NOW TO TOP IT OFF YOU WANT TO TAKE RUT-FOOT! WHY HE'S MY MOST VALUABLE EMPLOYEE! HE--HE'S INDISPENSABLE! THE PLANT CAN'T RUN WITHOUT HIM!
LOCAL DRAFT BOARD NO 2
CHAIRMAN
JIMMY HATLO
9-13
Thanx to ART KRINGS, WINONA, MINN.

Postwar Prospects For Commercial Refrigeration

AFTER the last war a host of new concerns invaded the then tightly held refrigeration industry. These concerns specialized on small machine development. From their experimentation came the household refrigerator, which attained a volume that was so much greater than that ever enjoyed by previous refrigeration products that no comparison can be made.

From the household refrigerator they moved on up the line, into commercial refrigeration, into air conditioning, and finally into the industrial types which had comprised the main branch of the business before the advent of these new companies.

'NEW' CONCERNS ACHIEVED DOMINANT POSITIONS

Some of the "old line" concerns saw the trend, and hopped on the bandwagon. Others scoffed, were left by the wayside. The "new" concerns, which had mainly derived from the automotive and electrical industries, achieved dominant positions in refrigeration.

A parallel may occur after the end of this war. It is true that many business enterprises which formerly had no part in the refrigeration picture are making plans to get themselves into the front row next time the photographer comes around. It is also true that some concerns which have a good stake in the refrigeration industry are inclined to scoff at the new business potentials which others foresee.

There are two classes of business enterprise which believe they see an opportunity for themselves in refrigeration and air conditioning. First class is the giant corporation whose market researchers have uncovered the "potential" hinted at above. Second class is the small manufacturer who has learned precision machining through war contracts, and is looking for something to make after these contracts are terminated.

Each of these groups figure that commercial refrigeration and air conditioning are "wide open," inasmuch as they are not forbiddingly dominated by widely accepted "trade names," as is household refrigeration. They also figure that there is an opportunity for new designs and new products—or at least products which hadn't been pushed to any great extent.

They are looking, for example, at farm freezers, at household low-temperature cabinets, at refrigerated vending machines, at new hospital applications, at egg coolers, at ice makers, at ductless air conditioners for homes, at automobile air conditioning, and a long list of other uses which heretofore haven't shown up much in the industry statistics.

Home and farm low-temperature cabinets, of course, interest nearly everyone. This "potential" also draws as many scoffers as did the household electric refrigerator in the early 1920's. Maybe the scoffers are right. Maybe it is true that if every firm makes a low-temperature cabinet which plans to, there won't be enough business to "go around" profitably.

A WHITE ELEPHANT? 'NO,' SAY THE USERS

And then again, maybe we're on the verge of something historic.

The scoffers recall that the low-temperature cabinet for homes was a white elephant before the war. They believe that its present amazing popularity is strictly a wartime phenomenon, the product of rationing and food scarcities.

On the other hand, if you ask a user, you'll invariably run into a "fan." The man-who-owns-one will talk all night about the exciting changes in his family's food utilization habits which the low-temp cabinet has made possible.

Also to be considered is the tremendous Pride of Possession appeal which the "Deep Freeze" type of cabinet has acquired in the last 18 months. Now to an engineer, Pride of Possession is a funny reason for wanting anything, or for producing anything. Yet Pride of Possession sold more household refrigerators than any other appeal for at least 15 years.

It actually has become a badge of distinction to own a low-temperature cabinet nowadays. It is something to be envied, something to boast about, a topic for conversation in every home that has one.

There are also, of course, surprising *convenience* features enjoyed by owners of low-temps—features that must be experienced to be appreciated—features such as increased variety of foods always on hand, savings through quantity purchases, savings through the ability to freeze surplus vegetables, fruit, poultry, and game when they are available and at the time they taste best.

THE AGE OF FROZEN FOODS IS FAST APPROACHING

Perhaps the most important reason which leads some shrewd market investigators to predict an annual volume of at least one million low-temperature cabinets annually for several years is a development which is yet over the horizon. This is the coming Age of Frozen Foods.

If we are to believe the people now engaged in frozen foods production and marketing, this will really be one of the major postwar revolutions in consumer usage and habits. These people predict that in time they will be able to *undersell* canned foods and even fresh foods so sharply that nobody will be able to afford to buy anything else.

FREEZING ENTHUSIASTS HAVE MANY ARGUMENTS

The frozen foods enthusiasts point to the fact that around 33% of all perishable food is wasted before it reaches the ultimate consumer. They point to all the union rackets that infest food distribution. They point to the economies possible when vegetables and fruits are raised on huge mechanized farms and promptly frozen there, to be distributed evenly and smoothly instead of seasonally, and bypassing brokers, middlemen, and all the parasites which have attached themselves to the heterogeneous food industry.

Naturally such a revolution in our food distribution system will not come about all at once. If it did, the industry would have a dickens of a time supplying the demand for all sorts of storage and transportation refrigeration, to say nothing of low-temperature refrigerators for millions of homes. The gradual transition expected, however, should provide a very comfortable annual market.

But, some say, with frozen foods available at every corner grocery, why bother with a low-temperature cabinet? Well, great numbers of housewives probably won't. They'll continue to do their shopping every day, just as they have always done.

HOUSEWIVES WILL WELCOME CHANGE IN HABITS

Nevertheless, there's a whole new generation of housewives who won't have the daily shopping habit, and who will easily see how convenient it will be to order a month's supply of food at a time. Some of our grandmothers never reconciled themselves to prepared foods. But our wives adopted them quickly. When a woman stops to realize how many years of her life have been spent in grocery stores, it may not be too difficult to induce her to change her habits.

The probable availability of frozen *cooked* foods—prepared by expert chefs—will also help the "low temperature revolution" along. Tomorrow's bride (and tomorrow's new husband!) will indeed be lucky.

TREND OF 'LOW-TEMP' PARALLELS REFRIGERATOR

Now all of this optimism regarding the home low-temperature cabinet may turn out to be quite unsound. Yet, the market analysts for some of the larger concerns can't help but noting many parallels between the "low-temp" and the household refrigerator in terms of sales appeal—Pride of Possession, Pays for Itself While You Pay For It, Ask the User, Convenient, Saves Time, etc. It seems to have every attribute the specialty salesman could want.

As for some of the other specialties in the commercial refrigeration line now being considered, they also have possibilities at which no one should scoff. If all these possibilities are realized to the extent that some market analysts predict, the market for commercial refrigeration products should be *quadrupled* in the next three years.

Nobody knows what the future holds, and nobody can be sure that the optimistic market analysts will be right. But there are so many parallels with the situation which existed after the last war that the prudent man in this industry will prepare himself for a meteoric refrigeration boom.

The scoffers were left at the post last time. It could happen again.

Lack of Cooling May Spoil 42 Million Pounds of Food, Merchants Fear

ST. LOUIS—Millions of pounds of perishable food are being wasted every month because refrigerated storage equipment in retail food stores is breaking down and replacement equipment cannot be secured, according to a nation-wide survey recently conducted by "Meat Merchandising" magazine. Despite the retailers growing aversion to filling out forms and questionnaires, nearly a fourth of those queried turned in detailed replies.

"Not only was the response from probably the most harassed class of business men in the country the highest in our history," the publication declares, "but the replies themselves are so sensational and revealing that they demand careful consideration by government officials concerned with the problem of conserving the nation's already critical food resources."

28% HAVE MORE SPOILAGE

The survey showed that 28% of the food merchants of the country now have more spoilage and "throw-outs" than under normal conditions, and the average loss per store was placed at 850 pounds per year. On the basis of the 500,000 retail food establishments in the country, it is evident that if the present situation is not promptly corrected, the annual toll would mount to 42,500,000 pounds of food a year, not to speak of an equally tragic waste in the manpower, transportation and processing facilities needed to bring the product of the grower to the American dinner table.

The survey revealed that in fully 75% of the stores in the country, a much greater volume of perishable foods is being handled. A variety of reasons was given for this trend; 54% reporting that they are serving more war-worker customers, while 48% stated that OPA rationing was chiefly responsible.

In addition, 57% of those reporting emphasized the fact that ODT regulations and other war economy restrictions had curtailed deliveries by packers and wholesalers to the point where the merchant must store his stocks from two to five times the normal period, thereby seriously overtaxing his present refrigerated storage facilities to the point where public health may be endangered.

NEED MORE EQUIPMENT

Fifty-five percent of the total surveyed declared that they will need additional refrigerated storage equipment in the near future, and if denied the opportunity by a continuation of present WPB restrictions on its manufacture, they cannot maintain their present standards of service to protect the health of their customers.

Another factor that is contributing heavily to this alarming situation, emphasized in many of the replies, is the shortage of servicing personnel, as occasioned by the draft and the lure of war plant jobs.

Of the retailers questioned, 41% stated that they had trouble keeping their present refrigerated fixtures operating at safe temperatures during the past few months because they were unable to have it serviced promptly or properly. The shortage of service men was cited by 37% of those replying as the reason why they must be furnished with new equipment at an early date.

It was further established that over 50% of all the walk-in coolers, and 20% of the refrigerated storage cases in service, and 28% of the compressors used by food merchants are 10 years or more old and in need of replacement.

In a feature article appearing in the November issue of "Meat Merchandising," commenting on the investigation, the editors say:

"It is incredible that at a time like this when the government is urging its citizens to use every bit of food and not waste a single morsel, that it is actually permitting millions of pounds of food to be wasted every month because food merchants cannot buy refrigerated equipment to properly protect the perishable foods they sell.

"The food retailers are aware of the critical refrigerated food storage problem they face and they are anxious to do everything possible to keep old equipment going, and to secure new equipment only where it is actually needed. However, if nothing is done to meet these requirements, they are virtually unanimous in agreeing that it would be a terrible calamity."

Compressor Association Forms Export Group to Study Postwar Sales Abroad

PITTSBURGH — Standard Refrigeration Compressor Association has enlarged its activities with the formation of an Export Group which has already held its initial meeting in New York to discuss postwar markets as they apply to the export field, announces C. P. Spalding, president of the association.

Following are the members of the Export Group:

P. A. Karl, export manager, Brunner Mfg. Co.; H. C. Morrison, Curtis Refrigerating Machine Co.; H. A. Sillcox, export manager, Copeland Refrigeration Corp. (c/o Sillcox Radio & Television Corp., New York City); Arthur Rocke, export manager, Lynch Mfg. Corp. (c/o Rocke International Electric Corp., New York City); Thomas Evans, Merchant & Evans Co.; M. Monson, export manager, Mills Novelty Co.; A. F. Scharer, export manager, and J. A. Elton, assistant export manager, Servel, Inc.; E. C. Burgin and V. A. Wilkinson, export directors for Tecumseh Products Co.; A. E. Cadwell, Universal Cooler Corp.; C. P. Spalding, Yates-American Machine Co.; John Carr, manager export department, York Corp.

"SYNTHETIC ARCTIC WEATHER," one of many precision-control applications of A-P Dependable Refrigerant Valves, is typical of refrigeration's important contribution to Victory today. At production centers, these refrigerated test chambers, accurately controlled at any temperature, duplicate the blustery high winds, and paralyzing cold encountered at all our far northern outposts. Here clothing and fabrics, guns and equipment, are quickly pre-tested for sub-zero combat service — successfully proved at a saving of time, money... and lives.

Providing accurate DEPENDABLE Control Valves for these new applications of refrigeration-at-war has been routine wartime service at Automatic Products Company.

They're but the forerunners of even more amazing adaptation of refrigeration to peacetime progress... progress already indicated by the "dreams" of many post-war planners. When your plans are ready, we offer the facilities of the A-P Research Laboratories to help you in their development. Use this service to your profit.

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REFRIGERANT VALVES

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—USED AND RECOMMENDED BY LEADING SERVICE ENGINEERS

Troubled With
"BO" (BACK ORDER)?

WHO isn't these days? BUT since WPB has given us clearance to place orders and since manufacturers' deliveries of merchandise are steadily improving, it stands to reason that "BO" is going to be less and less troublesome to AIRO customers—and soon! Hence this suggestion: better get our new 1943 Victory Catalog and place your orders as soon as possible. You know, "First come, first served."

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Brandt Analyzes Many Problems Involved In Changing to Methyl Chloride

Water as Secondary Refrigerant for Comfort Cooling Advocated by Engineer

WASHINGTON, D. C.—Theoretical and practical problems involved in the conversion of refrigeration systems from "Freon-12" to methyl chloride were outlined in one of the most comprehensive treatments of the subject ever given when H. G. Brandt, application and design engineer of Carrier Corp., spoke at the opening meeting of the 1943-1944 season of the Baltimore-Washington Section of the A.S.R.E.

Where the use of methyl chloride is necessary in comfort cooling systems, Mr. Brandt recommended that a secondary refrigerant such as water be used as the medium for cooling the air, with the refrigeration plant located in a separate room that was properly ventilated.

Follow the Codes

All installations should be governed strictly by code requirements where local codes apply. In cases where no local codes apply, the installer should follow the American Standard Safety Code for Mechanical Refrigeration.

Particular caution should be taken against the use of open contact electrical switches in spaces that are not properly ventilated, because this will enhance the chances of explosion in the event of a leak in a system charged with methyl chloride.

When a leak occurs, a convenient method of locating it is by the use of a halide torch, but this should not be attempted in a confined space unless ample ventilation is assured. The precautions to be taken are the same as those taken when working around gasoline or illuminating gas, declared Mr. Brandt.

A safe method of locating leaks is by the use of soapy water, but Mr. Brandt pointed out that this method will not prove effective except in the case of a major leak.

Methyl chloride containing 1% acrolein as a warning agent provides a means for indicating the presence of a leak, Mr. Brandt explained. Acrolein is irritating to the eyes, nose, and throat, and is readily recognized in concentrations of only 1 part per million.

Aluminum and rubber should not be part of a system charged with methyl chloride, but all other materials commonly used in a "Freon-12" system can be used with methyl chloride, said Mr. Brandt.

Methyl chloride reacts chemically with aluminum in the presence of water to form a spontaneously flammable gas, according to Mr. Brandt.

The speaker then quoted a report from a refrigerant producer to the effect that methyl chloride containing acrolein has been found to be noncorrosive to metals and non-injurious to lubricating oil. It has been given the approval of the U. S. Bureau of Mines and will meet current municipal regulations for a refrigerant containing warning properties where such is required, as in the case of the Chicago Code.

However, this same report warns that a system charged with methyl chloride and acrolein must be kept dry and free of foreign material, as an acid resulting from the presence of moisture and alkaline drying agents such as calcium oxide may change the acrolein to a troublesome solid substance which cannot be removed with solvents.

'Dryness' Is a 'Must'

"Dryness" is a "must" in methyl chloride installations because methyl chloride forms corrosive products in the presence of water even more rapidly than "Freon-12," Mr. Brandt asserted. He recommended the use of a permanent liquid line dryer, particularly for those plants which normally operate under a vacuum in the low side.

With respect to compressor ratings, Mr. Brandt said that on the basis of a rough approximation, methyl chloride ratings are to be considered as something like 3 to 5% less than "Freon-12" over a normal range, with a corresponding reduction in the brake horsepower of 5 to 7% because of the slightly higher efficiency of methyl chloride as a refrigerant.

Pipe sizes for methyl chloride installations are smaller than those required for "Freon-12." However, this is an advantage that can be realized only on plants designed for the duration, using methyl chloride, and in applications where the permanent use of methyl chloride is okay under normal conditions.

Sizing of Piping

If it is proposed to convert a plant back to "Freon-12" later, said Mr. Brandt, the piping should be sized for "Freon-12." This brings up a problem of oil return in upward vertical risers, both suction and hot gas, since a linear velocity of 1,200 ft. per minute at 40° F. suction is required for methyl chloride, compared to 700 ft. per minute in the case of "Freon-12" at the same suction temperature.

In most cases, said Mr. Brandt, it will be good practice to undersize such upward risers for the higher velocity required for methyl chloride, sizing the horizontal runs and downward risers for "Freon-12." Experience has demonstrated that once the oil has been conveyed through the vertical upward riser into the suction main, oil return through the main back to the compressor can be accomplished by giving a slight pitch to the line. Traps should never be used in the suction main, however.

In converting an existing "Freon-12" installation to methyl chloride, said Mr. Brandt, it may be necessary to install a smaller parallel upward riser to insure oil return, and to valve off the original riser.

Check Suction Velocity

Mr. Brandt emphasized the importance of checking suction line velocity at the minimum capacity condition in installations where two-speed motors, multiple compressors, or cylinder unloaders are used. In such cases, Mr. Brandt said, it is generally necessary to employ double suction risers, one sized for the minimum loading, and the combined areas sized for the maximum loading.

This requires that the risers be so installed that at minimum loading the larger riser loop will fill up with oil and thus automatically close off. When the maximum loading returns, this oil is swept through the riser into the suction main.

The speaker said that through experiment it had been determined that the suction gas will convey oil satisfactorily in a "Freon-12" system when the linear velocity is about 700 ft. per minute at 40° F. suction temperature. Following through on the premise that oil conveyance is a function of mass velocity, the linear velocity required for adequate oil return at other suction temperatures can be calculated, Mr. Brandt stated.

The required linear velocity at any other suction temperature will vary inversely as the square root of the vapor densities. The following table was then presented by Mr. Brandt:

Sat. Suction Temp. (° F.)	(Linear Velocity (ft. per min.) "Freon-12"	Methyl Chloride
40	750	1,200
20	850	1,400
0	1,000	1,750
—20	1,250	2,200

The "liquid slopover effect"—return of liquid refrigerant to the crankcase—is more of a problem with methyl chloride than with "Freon," according to the speaker. The latent heat in B.t.u. per lb. is about three times as great for methyl chloride as it is for "Freon," and thus a much longer time is required to distill it from the oil if it reaches the crankcase.

Recommends Separator

This recommends a large-enough liquid-suction interchanged for all flooded systems to insure the complete distillation of the liquid refrigerant slopover. A high pressure oil separator is recommended in the compressor discharge line to return oil promptly to the crankcase in the event that the oil is diluted.

In a dry-expansion system, Mr. Brandt explained, pump-down control should be the rule in those installations in which during the shutdown period the evaporator pressure can without such control rise abnormally and promote slopover to the compressor on starting.

The liquid density of methyl chloride is about two-thirds that of "Freon-12" and therefore the weight of refrigerant required to charge a methyl chloride system is less, Mr. Brandt explained. In installations in which the refrigerant lines are extensive, and are sized specifically for methyl chloride, the reduction in the amount of the charge will be greater.

(Concluded on Page 15, Column 1)

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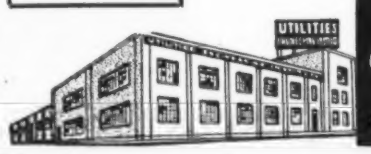

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'Freon' Compressors May Overheat When Methyl Chloride Is Substituted Unless Proper Care Is Taken, Brandt Warns

(Concluded from Page 14, Column 5)

There is no advantage in overcharging a system, Mr. Brandt asserted. The installation of a sight glass in the liquid line at a low point near the receiver or condenser will be an asset in establishing the correct charge. When the gas bubbles disappear a flow of solid liquid is indicated and charging should cease.

Compressors designed primarily for "Freon" may overheat substantially when used with methyl chloride under conditions of high compression ratio, when accompanied by suction superheat of a magnitude considered normal in the case of "Freon," Mr. Brandt warned.

Characteristic Results

The characteristic results of high discharge temperatures are possible carbonization of oil, warping of discharge valves, and removal of temper from valve springs with consequent failure of the compressor.

While the safe limit of maximum permissible discharge temperature is not the same for all designs of compressor, Mr. Brandt said that if it is assumed that 250° F. is the probable safe limit for most machines, the discharge temperature can be kept within this boundary if the suction gas is maintained somewhere near the saturation point and if moderate condensing pressures prevail.

In "Freon-12" systems, Mr. Brandt explained, it is common practice to install liquid-suction interchangers, particularly in freezer applications. Most compressor ratings are on the basis of 65° F. suction gas entering the compressor when "Freon-12" is the refrigerant.

In the case of methyl chloride, this amount of suction superheat at a compression ratio of 10 would result in a discharge temperature of approximately 312° F., which probably could not be tolerated in standard machines of this type, said Mr. Brandt.

Thus it is evident that in low temperature applications, in which high compression ratios prevail, high suction superheat produced by large liquid-suction interchangers, long uninsulated suction lines, or other sources producing superheat should be avoided.

Mr. Brandt said, however, that this is not intended to disqualify the use of interchangers in methyl chloride systems. Their use may be indicated for:

1. Expansion valve operation.
2. Distilling refrigerant from oil.
3. Subcooling liquid when liquid must be elevated to an evaporator at a high level above the receiver.

Except under unusual conditions, the amount of superheat resulting from functions 1 and 2 is not likely to cause overheating, said Mr. Brandt.

However, before an interchanger is used for 3, subcooling liquid, a check should be made to determine whether or not the result superheat will produce discharge temperatures in excess of that for which the machine is designed.

If the liquid cannot be elevated to the required level by subcooling without also producing excessive suction superheat, a practical alternative suggested by Mr. Brandt is to locate the condenser-receiver at the same level or above the highest evaporator.

Controls Need Adjustment

The conversion of "Freon" systems to methyl chloride require that certain adjustments be made in expansion valves, pressure controlled switches, water regulating valves, and back pressure valves, because of the differences in operating pressures.

Experience has shown that certain makes of "Freon-12" valves can be made to operate fairly well on methyl chloride systems. However, the question of how satisfactory the operation will be depends upon whether or not the existing valves are pretty much oversize, just about right for the load, or somewhat undersized.

A valve that is slightly undersized on the basis of "Freon" affords the best control, said Mr. Brandt. However, the characteristics of valves of different manufacturers are not the same, and it should not be assumed that satisfactory operation will always be obtained by mere adjustment. It is often a good idea to use the advice of a valve manufacturer. A valve that is substantially oversize when operating with "Freon-12" should be replaced by a suitable methyl chloride valve without question, Mr. Brandt declared.

May Mix Refrigerants

Mr. Brandt said that methyl chloride may be added when necessary to a "Freon-12" system to make up a deficiency in the charge. He said that experience had demonstrated no engineering or operating difficulties resulting from this practice. However, if methyl chloride is added in considerable quantity, the code regulations and other safety precautions should be observed.

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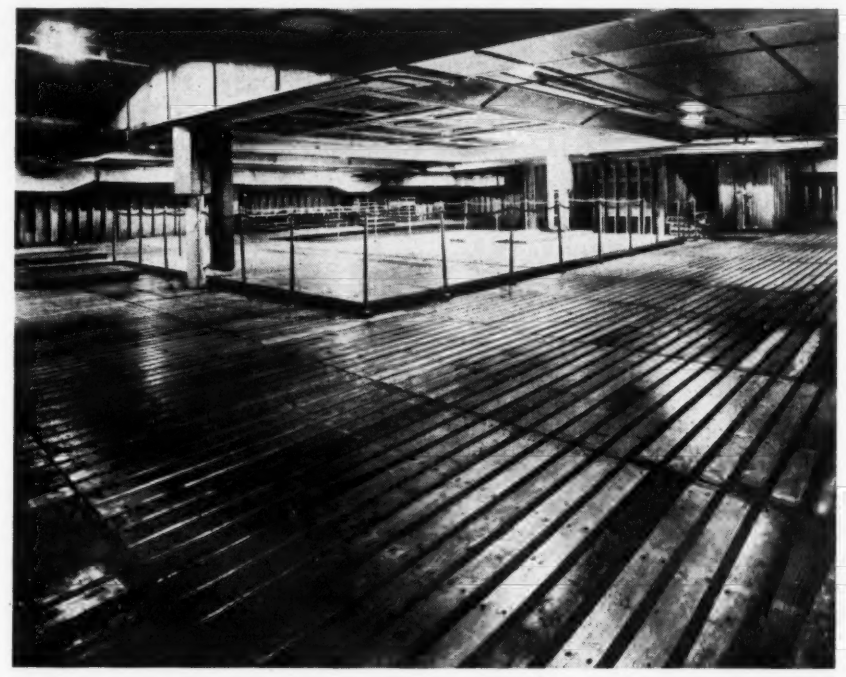
While Mr. Brandt said that this statement was not a general endorsement of the practice of mixing "Freon" and methyl chloride, in emergency situations it is a workable expedient that promotes the conservation of both refrigerants.

Since pressure-temperature relationships will vary according to the percentages of either refrigerant, the fact that methyl chloride has been added should be indicated by a sign on which is shown the proper settings of the control instruments. This same thing should be done when the "Freon" charge is completely replaced by methyl chloride.

Freighter Converted for Refrigeration



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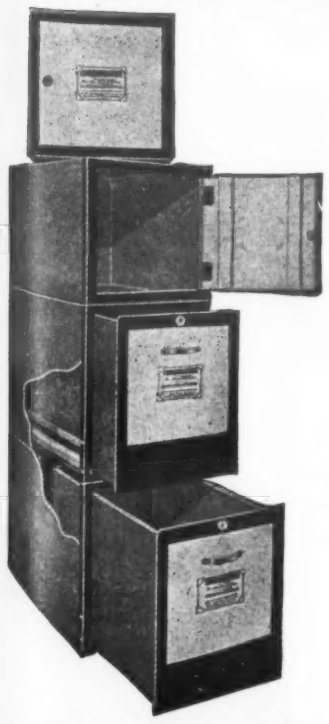

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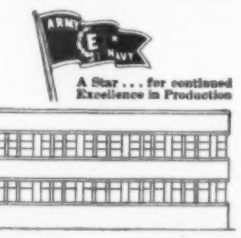

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Advantages and Savings Justify Cost of Home Freezer, Utility Official Finds

Owner Computes Actual Operating Expenses & Thinks They're Okay

BOSTON — Cost of owning and operating a home freezing unit is justified by the advantages and savings such a unit makes possible, believes O. B. Swift of the New England Power Service Co., who described his experiences with a quick freeze chest in a talk broadcast over the New England Farm Hour recently.

"Our home quick freeze chest has been in operation for about a year and a quarter," Mr. Swift said. "It is of a well known make, 10½ cu. ft. inside capacity with two compartments, the smaller operating at 10° F. below zero, and the larger at zero. During this time we have put the chest to about every type of use.

"At first we proceeded cautiously and for a time confined ourselves to commercially processed frozen foods. The box was large enough to permit storage of wholesale size cartons weighing 10 or 20 pounds and still accommodate a goodly variety.

"We found the food delicious, easy to prepare for the table, and economical to buy when purchased in these quantities. The list included the normal assortment of vegetables, fruits, ice cream, fish, poultry, meat for the table, and horse meat for the dogs.

"As we had a large home garden and also raised poultry and hogs for home use, it was not long before we began to experiment with the freezing of our own products.

"There is plenty of printed information available on the subject, and the process is much simpler and quicker than canning. Excellent packaging material is available at small cost. With equipment present in most kitchens and ordinary care in following well tested instructions one should have no difficulty. In our case, everything we put up has been good and some of it has been in storage over a year."

Conventional methods of preparing foods for freezing were used, he said, and their success prompted them to freeze more food than they produced at home. So the Smiths purchased raw materials from farms and markets.

How They Figured

In determining the costs of their units the Smiths figured as follows: "We were using food from the chest at the rate of about three pounds a day or 1,100 pounds of food a year for a family of five. For a year we had a separate electric meter connected to it and found that it used an average of 2.3 kw-hr. a day. This costs about $25 a year on a typical electric rate. Kw-hr. use would tend to be higher if the chest were in a warm location, opened more frequently, or used more for home freezing and less for storing commercially frozen food.

"In a proper cost analysis one must assume a charge for interest on investment, maintenance, and depreciation, although people seldom subject household equipment to such scrutiny. The amount of this charge would vary greatly with the price and useful life of the chest.

Costs $51 a Year

"In my own case I am allowing 10% or $26 a year for this. That means it costs me $51 a year to own and operate the chest. Applying this charge to the 1,100 pounds of food results in a cost of 4¾ cents a pound to preserve and store it. With a normal supply of meat and commercially frozen food available the use would increase to at least four pounds a day. This would lower the above costs to 3½ cents a pound.

"This cost is in my opinion justified by the advantages and savings made possible. If the chest is large enough there is first the economy of purchasing perishable foods in quantity; second, the opportunity to preserve your own farm products in prime conditions, especially things which are not usually canned, such as strawberries, corn on the cob, poultry, and pork. Cockerels, for example, can be raised to the size you like best and then dressed and frozen at once with no more feeding expense.

Supply Is Convenient

"Third, there is the convenience of having a good supply of food on hand with less frequent trips to the store, especially if good markets are quite a distance from home. This in turn results in a saving of gasoline and tires.

"Fourth, there is the satisfaction of better tasting food because frozen food does taste better than canned food; and fifth, the enjoyment of choice foods out of season, including berries, corn on the cob, game fish, birds, and meat, and other delicacies that may strike your particular fancy," Mr. Smith declared.

There are two important factors which should be considered when contemplating purchase of a quick freeze chest, Mr. Smith found after his first-hand experience: the make of the box and the size.

'Buy a Reliable Make'

"Purchase only a reliable make of quick freeze chest," he advises. "Although we have had no breakdowns it is easy to imagine how serious the loss of 250 pounds of food would be. Short interruptions would not be damaging, but it is best to know where you can get a service man if you need one and, if possible, where you can get dry ice to put in the chest to keep it cold if a breakdown in equipment or power supply should last more than, say, 10 hours.

'Purchase the Right Size'

"Purchase the right size chest. If you have gotten along for years without a quick freeze it is easy to believe that a small one will be big enough. If you live near the stores, wish to shop often, and plan to buy commercially frozen food, a smaller size will do. Even then you will need lots of space to accommodate a wide variety of food purchased in large cartons.

"On the other hand, if you plan to do your own freezing at home you will need a larger size to accommodate a year's supply of seasonal fruits and vegetables as they appear as well as home grown meat at slaughtering time or wholesale cuts purchased in the market and prepared and frozen at home.

"One cubic foot of space holds about 25 pounds of frozen food, although there is considerable variation in different items. Our experience has shown that we could make excellent use of 18 cu. ft. of freezer space and I believe that complete use of freezing for food preservation by the average farm family easily calls for 30 cu. ft."

He Knows Its Worth

O. B. Swift of the New England Power Service Co. takes a look in the home freezing unit which he found so satisfactory. Convenience in having a large food supply on hand, and the pleasure of eating food frozen at its peak condition are worth $51 a year the chest costs him, Mr. Smith believes.

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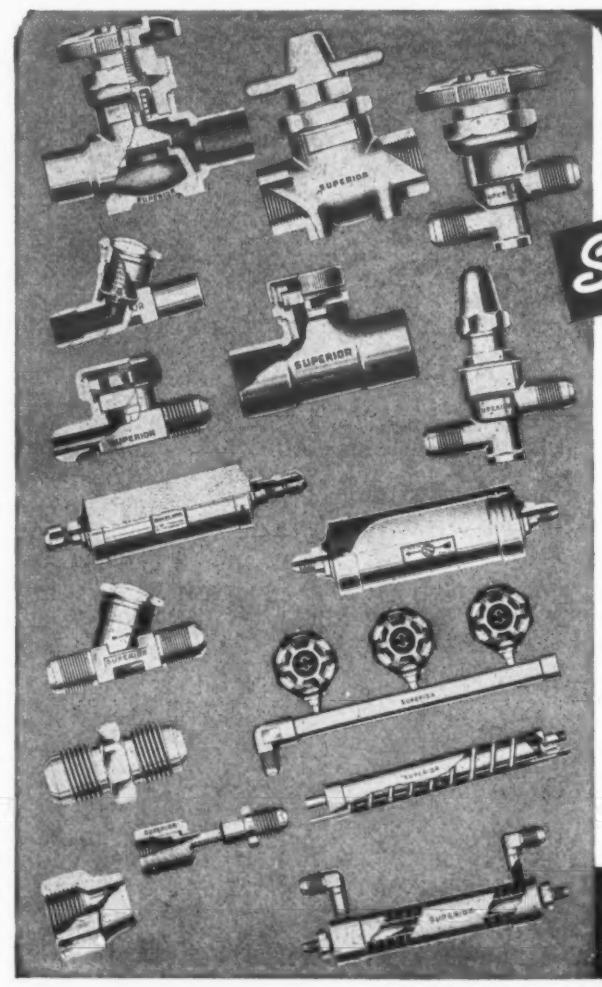

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Low Temperature Treatment Gives Tool Steel Longer Life, Engineers Told

INDIANAPOLIS, Ind.—Cold treatment of metals—to temperatures as low as minus 130° F.—to produce high hardness and improved ductility, was one of the highlights of the technical sessions held by the American Society of Tool Engineers at a meeting here last month. Most of the two-day meetings were devoted to problems encountered in the manufacture of aircraft engines, and the final session was given over to talks by engineers of the Allison Division of General Motors Corp.

INTEREST IS REVIVED

G. B. Berlien, chief metallurgist, Lindberg Steel Treating Co., Chicago, spoke on sub-zero refrigeration of high alloy steels at the opening technical session. Mr. Berlien pointed out that while interest in cold treatment of metals dates back to 1914, more recent development of mechanical refrigeration systems which will operate at very low temperatures has revived interest in the subject. Cold treatment of 18-8 stainless steel was first used to develop spring properties in metals used in a submarine hatch cover application.

At the present time sub-zero treatment is applied to high speed steel of the 18-4-1 variety, with or without cobalt, and to the newer molybdenum types, at temperatures ranging from minus 80° F. to minus 130° F. This process is said to result in improved hardness and ductility. Treated at a temperature of minus 110° F. this material shows no apparent change in magnetic properties, the speaker said.

Hardening of high speed tool steels is done in the usual manner by heating them to a temperature of 2,300° F. in two or three stages. The metal is then cooled to a temperature of at least 200° F. by the application of quenching oil, lead, salt, or air. The speaker warned that a continuous cooling rate must be maintained when the temperature is lowered by refrigeration from this point to minus 110° F. Mr. Berlien stated that it is sometimes advantageous to slow up the cooling rate by wrapping the tool in paper, but he stressed the importance of a continuous cooling rate.

Sub-zero refrigeration is applied to alloy steels to complete the transformation of austenite into martensite. This change is adversely affected if the tool is left in the air for 30 hours or more after hardening by the application of high temperature. Mr. Berlien reported that no advantage has been found in cooling these metals below minus 110° F.

After cooling to low temperatures is completed in a cycle of about six hours, the tool is removed from the refrigerator, and is allowed to come to room temperature normally. It is next tempered, or drawn, at 1,000° F. to 1,100° F. to produce the desired hardness. In some instances the tool is given a double draw, and in this case the application of sub-zero temperature is necessary before each draw. Tools cracked from this treatment do not constitute a problem, the speaker asserted, because the percentage damaged is very low.

As an example of the results made possible by refrigeration, Mr. Berlien reported the case of an 18-4-1 high speed tool steel used to machine an SAE 2330 heat-treated steel forging of 300 Brinell hardness. Tools treated to sub-zero temperatures and then hardened had a life of from 90 to 110 pieces between grinds; tools receiving conventional treatment had a life of only 25 or 30 pieces between grinds.

Air hardening steels also respond well to sub-zero treatment, Mr. Berlien asserted. Steels of this type, having 12% to 14% chromium, 1½% carbon steels retain considerable austenite. Hardness of these steels can be improved by low temperature treatment, even when left at room temperature for a considerable period of time after quenching.

HAZARD IN TESTING

The speaker found that the transformation point for steels of this type is from minus 80° F. to minus 90° F. Mr. Berlien warned that there is a hazard involved in Rockwell hardness testing after the first cycle, since the work will tend to crack. Drawing the work to 325° F. will eliminate this danger, he said.

A gain of 12 to 15 points on the Rockwell C scale can be obtained by refrigerating nickle carburizing steels to minus 120° F., the speaker has found. Tungsten shock steels can be case carburized and then subject to sub-zero treatment to obtain high surface hardness and high core strength.

How expansion of aircraft parts in service has been overcome by low temperature treatment of metals was related by the speaker. In one example, an aircraft pump plunger made of SAE 52100 steel grew in service due to austentite transformation. By first obtaining a thoroughly martensitic structure by refrigeration, this expansion of growth was overcome.

In conclusion, Mr. Berlien predicted that before long every tool hardening room in the industry will have installed low temperature refrigeration for the purpose of creating a completely drawn microstructure in tool steels.

Refrigeration Shortens Years of 'Aging' Steel for Tools Into a Few Hours

LANSING, Mich. — Steel which ordinarily must be "aged" several seasons before it is fit for fine precision instruments and machine tools can now be processed in a few hours with the industrial sub-zero refrigerating machine developed and produced by Kold-Hold Mfg. Co. here.

Other low temperature units developed by Kold-Hold are being used for a variety of similar purposes, such as the storage of heat-treated aluminum sheets until ready for sheathing bomber and fighter planes.

Until Kold-Hold introduced its cabinet for steel, it was customary to dump steel in back of plants where it would be exposed to rain, heat, and snow for several seasons, until its quality and texture reached the point where there would be no shrinkage or expansion upon shaping.

Two quick methods of treating the steel are now available, both utilizing the 11 cu. ft. industrial machine.

In the first method parts are formed, shaped, and ground to within .002 inch limits and are then placed in the industrial machine at a temperature of —60° F. for a period of 10 hours.

Then the parts are removed from the cabinet, warmed normally to room temperature, and subjected to an oil bath. Temperature of the oil is gradually raised to 200° F., and at this temperature the parts are permitted to soak for about eight hours.

Upon removal from the oil bath the steel parts are allowed to return to room temperature before being placed in the refrigerated cabinet for another 10 hours at —60° F. After removal, the parts return to room temperature once more and then they are finish ground and lapped to specifications.

This method has been estimated as the equivalent of two winters and one summer of normal weather aging.

The second method differs from the first only in the cooling medium used. Cold air provides cooling effect with the first method, whereas the second involves a liquid. The chilling chamber of the Kold-Hold unit is filled to about two-thirds capacity with mineral spirits, Prestone, acetone, or another non-freezing liquid, which is chilled to —60° F.

Here again the parts are ground to within .002 inch, immersed for eight hours in the —60° F. liquid, restored to room temperature, heated in oil to 200° F., returned to room temperature, cooled once more, and then finally finish ground and lapped.

Advantage of the second method is that any stresses or strains either will be relieved, or will show up in the form of checks when removed from the liquid, it is claimed.

Other types of Kold-Hold cabinets, some nearly half the size of a box car, are being used to store aluminum "skins" for airplanes. It is claimed that this low temperature storage permits perfection of seams.

Aircraft Carrier Units Win Commendation

YORK, Pa.—Reports from a veteran U. S. aircraft carrier which has steamed over 110,000 miles on Atlantic convoy duty have specially commended refrigerating plants built and installed by York Corp., Rear Admiral E. L. Cochrane, Chief of the Bureau of Ships, has revealed in a telegram to the company's several thousand war workers.

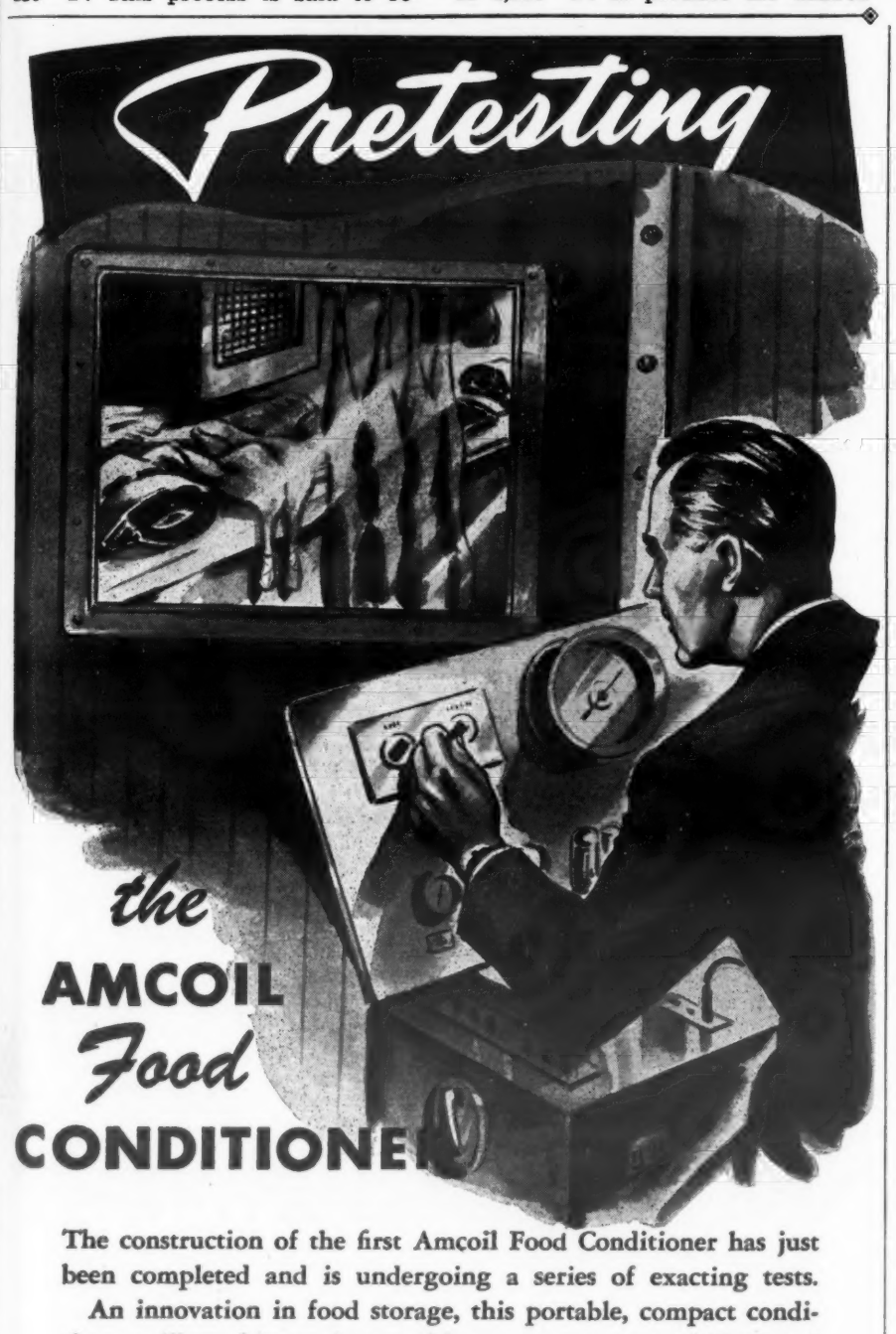
"Because of increased wartime complements of men abroad and increased cruising radius, it is necessary to carry greater quantities of food than usual," the telegram read in part. "Your equipment met every demand in preserving these vital food supplies over a long period of time."

York workers were previously congratulated by Rear Admiral Cochrane for their part in building the air conditioning equipment which helped the U. S. submarine Wahoo chalk up a spectacular series of victories off New Guinea.

Camper Named Crosley Regional Manager

CINCINNATI—S. D. Camper has rejoined the commercial division of the Crosley Corp. as southeastern regional manager, reports J. H. Rasmussen, commercial manager.

Prior to his joining Crosley, Camper was connected with Kelvinator as district manager for a period of eight years; with the R.C.A. Mfg. Co. of Camden, N. J. as central western division manager.



The construction of the first Amcoil Food Conditioner has just been completed and is undergoing a series of exacting tests.

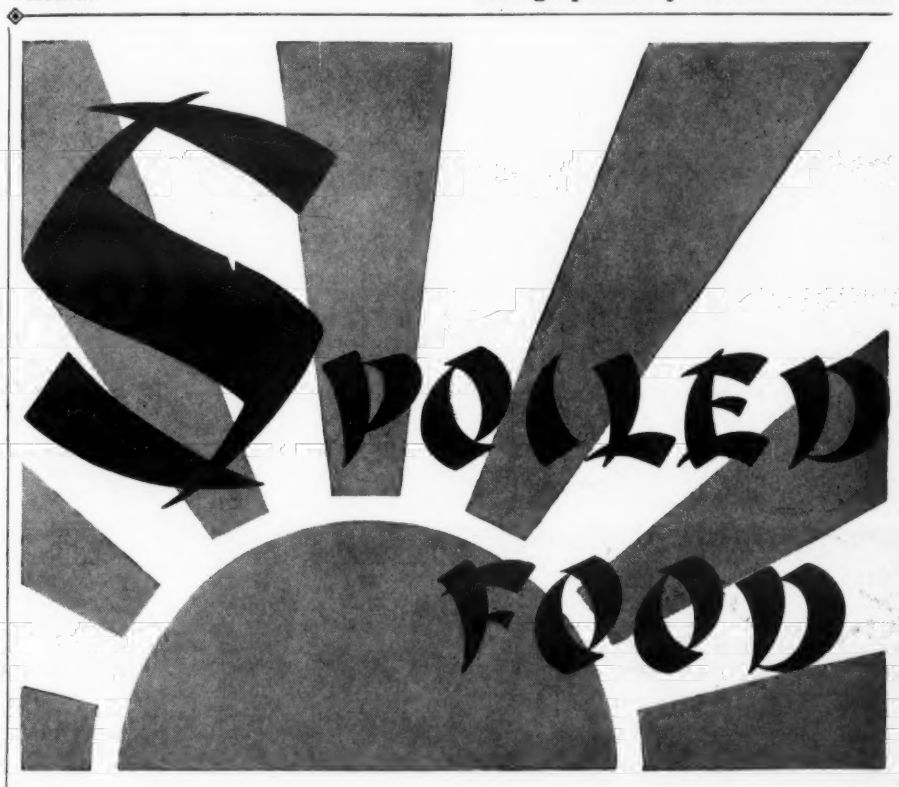
An innovation in food storage, this portable, compact conditioner will combine moisture with temperature control. Designed for use in Walk-In Boxes, it is completely automatic, permitting adjustments for varying quantities and kinds of foods.

Amcoil Food Conditioners will first perform valuable wartime service in transport planes, Navy and Merchant Marine ships, Army commissary departments, etc. After the war these conditioners will be available for use in hotels, storage plants, packing houses and other industrial applications.

This most recent development is another product of the pre-war and wartime experience of Amcoil's engineers in refrigeration, air-conditioning and high and low temperature testing equipment.

Watch This Paper for Further Details

AMCOIL
AMERICAN COILS CO.
25-27 LEXINGTON STREET - NEWARK, N. J.



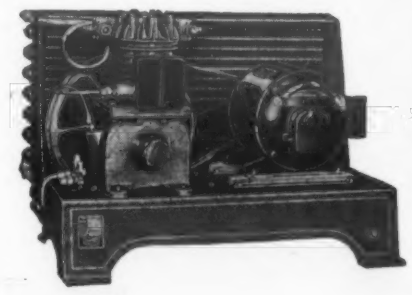
Whenever *any* American food supplies spoil for lack of refrigeration ... that's a nice break for the sons of the Rising Sun!

Why? Because today food is actually as vital as armaments to the United States and her Allies. Armies *still* fight on their stomachs... war-workers work on *theirs*... and all-important civilian health certainly depends on good food. Yes, we still have a good supply of food in our national larder... but not so much that we can let a bit of it spoil and go to waste.

We can't afford to give the Nipponese *any* kind of a break! That's why America has placed proper refrigeration in the "must" class... where it has always belonged! And, of course, Brunner equipment... foremost in the field for years... has been wisely drafted to *keep* refrigeration requirements top-high for the duration!

The utter dependability of Brunner condensing units and refrigeration equipment is a comforting asset to all who handle America's food... in great quantities or small.

After the war, Brunner will still keep its standards...and *yours*...as lofty as it is humanly and mechanically possible.



ARMY E NAVY
BRUNNER
COMMERCIAL REFRIGERATION

BRUNNER MANUFACTURING CO., UTICA, N. Y., U. S. A.

Functions and Accomplishments of The Industry Advisory Committee

Committee Members Invite Any and All to Write On Problems, Which Will Be Submitted to WPB

By A. B. Schellenberg, Alco Valve Co., St. Louis

Last April in a talk at the Rema meeting I complained that our WPB Industry Advisory Committee was not truly an Advisory Committee. I pointed out that this Committee had left the audience stage and was in the critic's stage with the hopes of becoming an Advisory Committee in fact.

I am happy to report to you that your committee is now really functioning in an advisory capacity. I do not mean to imply that everything that comes out of WPB has been formulated or approved by the Industry Advisory Committee, but certainly in most cases the committee's advice has been solicited and given every consideration.

Present attitude of WPB officials is very encouraging and healthy. They now recognize the necessity and value of industry help and industry is given every opportunity to advise. It has been a very gratifying experience to see more and more of the committee's recommendations accepted and put into use.

The 10 man General Refrigerating and Air Conditioning Advisory Committee has met regularly in Washington once a month. Since members of this committee were from all over the country it was not always possible for everyone to attend each meeting.

It was the feeling of the committee members that the size of their committee should be increased to insure adequate industry representation at every meeting. At the committee's suggestion a new 15-man committee was recently appointed. The committee, known as the "General Refrigeration Industry Advisory Committee," consists of the following members:

Frank Smith of Tecumseh.
Wayne Jordan of Liquid Carbonic.
T. S. Pendergast of Universal.
A. B. Schellenberg of Alco Valve.
C. E. Scott of Fedders.
C. V. Hill, Jr., of C. V. Hill Co.
Charles Knox of Baker.
H. F. Hildreth of Westinghouse.
W. H. Aubrey of Frick.
R. F. French of Carrier.
Frank Kirk of Vilter.
H. J. Jarvis of Refrigeration Engineering, Inc., of Los Angeles.
H. F. Lehman of Frigidaire.
F. H. Faust of General Electric.
M. G. Munce of York Corp.

This talk is supposed to cover the accomplishments of your Industry Advisory Committee. I will try to briefly outline for you what this committee has been doing. In general, your committee has been dedicated to several major objectives:

Our first objective has been to establish the true importance of our industry to both the war effort and civilian life. We are not by any means satisfied that this has been completely accomplished, but certainly real progress has been made—thanks to the effort of our industry.

The importance of our industry is being recognized more and more by those in government and the Armed Forces. This is evidenced by the fact that higher WPB officials and Army and Navy representatives now attend our committee meetings.

Government Relations Better

Most of our recent meetings have been attended by Fred Gardner, director, General Industrial Equipment Division; Fred Smith, chief of the Special Equipment Branch; Sterling Smith, chief of the Refrigeration and Air Conditioning Section; and Navy and Army representatives of the Army Navy Munitions Board. It is interesting to observe that our industry is one of the few on the upgrade with respect to government recognition and importance. This will stand us in good stead in the transitional days to come.

Our second objective has been to obtain priority and CMP status commensurate with our industry's importance both for new production and repair and maintenance materials. Again, we have not completely accomplished our goal, but when viewed in light of the overall war effort and the status of most other industries we have not fared too badly.

Under CMP manufacturers of refrigeration equipment for war usage have received pretty fair treatment. The repair and maintenance ratings still are not adequate and it is hoped that some day soon this can be remedied.

Our third objective has been to constantly strive for the simplification of government orders. The committee has continually reviewed the existing orders at its meetings, suggesting ways in which they could be improved.

Much attention has been given to the elimination of overlapping orders. If you will review the changes made in P-126, L-38, and M-28 you will realize that a great deal of progress has been made. These orders today are simpler, easier to work with and in many cases more liberal and helpful than they have been in the past.

Another objective of your committee has been to bring to government and the Armed Forces facts, information and sound recommendations which will help them in the prosecution of the war. As specific major situations arise WPB appoints, from among the general committee members, a task committee to submit a special report on the problem at hand. These reports contain facts, pertinent details and general recommendations gathered from our industry.

In addition to assisting our WPB officials in arriving at decisions, these reports also provide them with support and backing in their dealings with other WPB segments and government agencies.

To date there have been three major task committee reports; one on the repair and maintenance situation; another on the "Freon" situation and the third on 1944 civilian requirements. Should you be called upon for assistance by the members of such a task committee I hope that you will cooperate for these reports, I am sure, play an important part in the formation of WPB policy and rulings.

Our fifth objective as members of the Industry Advisory Committee is to bring to government the ideas and suggestions of the individual members and segments of our industry. The members of this committee feel keenly their responsibility as representatives of the industry and it is their honest desire to truly represent the opinion of the industry.

The WPB officials with whom we work are extremely anxious to receive field and industry reactions and comments and look to our committee for them. At every meeting the WPB officials ask us for comments from the industry. Frequently committee members will present and defend the beliefs of some individual or company in the industry even though they may not have subscribed to that belief themselves.

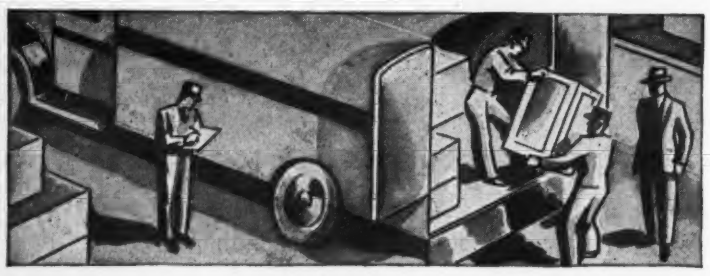
Use the Committee

Make full use of this committee. Any member of the committee will be happy to present your opinions and constructive criticism to WPB if you will write him. Normally Industry Advisory Committee meetings are called by WPB. If, however, a situation should arise of such importance that it demands imme-

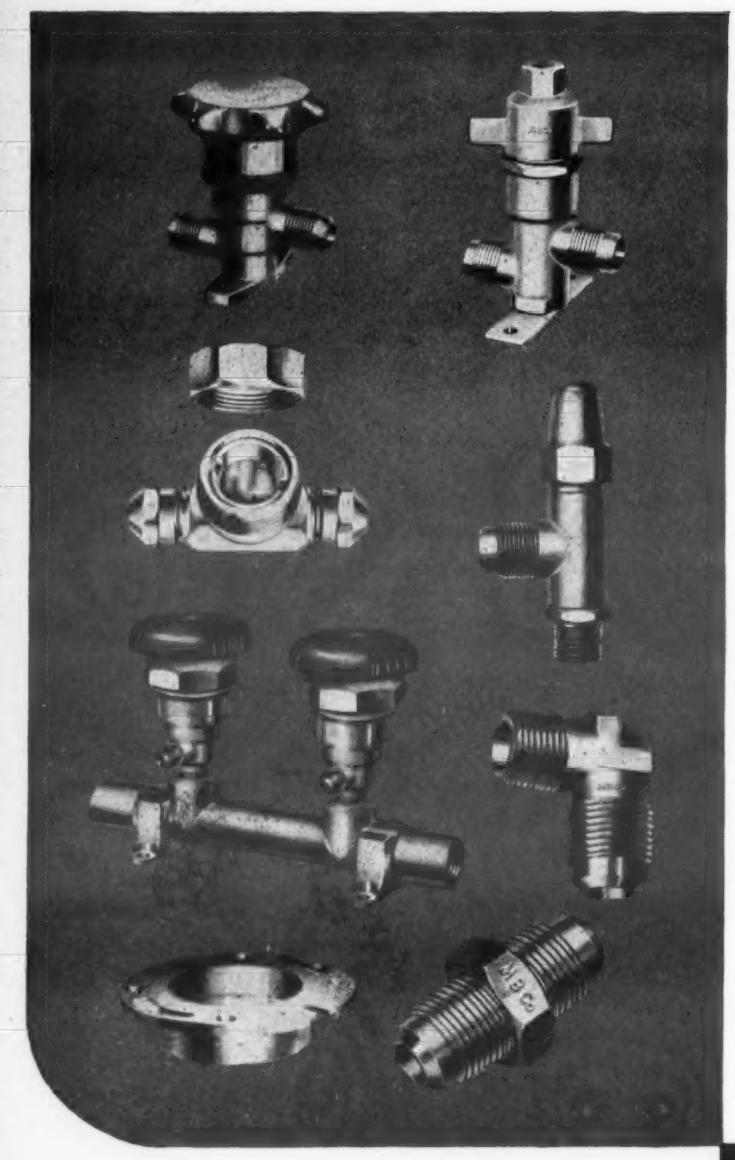
(Concluded on Page 19, Column 1)

WPB Refrigeration Chief Speaks

Sterling Smith, Chief, Refrigeration Section of WPB, addresses one of the sessions at the Fall Conference held recently at French Lick. Others at the speaker's table are John Wyllie, Jr., chairman, National Refrigeration War Council; A. B. Schellenberg, vice president, R.E.M.A.; and R. H. Luscombe, president, R.E.M.A.



A REPUTATION FOR SUSTAINED DELIVERY



Although war time production and restrictions have necessarily made it very difficult to produce and ship goods to our customers at a rate approximating our peace time rate, we have managed to supply our customers with their essential requirements in reasonable time.

This condition does not prevail through mere chance. When the war broke out we made an extensive study of how we could best serve our customers within existing regulations. This, together with the fact that we are not dependent upon outside sources, but manufacture and control all the parts and operations of our products from the virgin metal to the finished goods, is largely responsible for our favorable position today. WE HAVE A REPUTATION FOR SUSTAINED DELIVERY.

Mueller Brass Co. refrigeration products are in use with our armed forces on practically every front. They are incorporated in units produced by other manufacturers who depend upon us for prompt service and quality products.

Service engineers can place full confidence in Mueller Brass Co. Valves and Fittings. Rigid laboratory control, skilled engineering, highest quality materials, precision workmanship and rigid inspection combine to make our products constantly dependable.

VALVES • FITTINGS • ACCESSORIES FOR REFRIGERATION AND AIR CONDITIONING

MUELLER BRASS CO.
PORT HURON, MICH.

LET YOUR SALES RISE WITH HILL

Join the leader, if you too want to be a leader. Year after year, since the founding of C. V. Hill & Co. Inc., fifty-four years ago, Hill sales and the sales of Hill distributors have been on the up.

New models, new advertising and new business getting plans are now under way to resume Hill leadership in the sale of commercial refrigerators, as soon as hostilities cease.

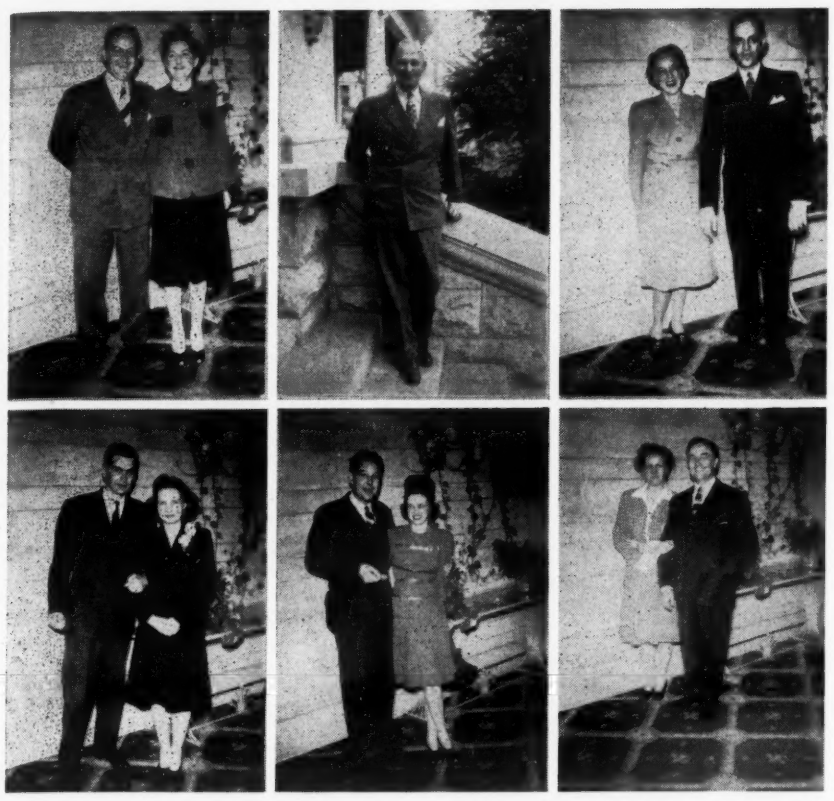
A few territories are open for reliable, energetic dealers. If interested, write:

43-4

Hill

C.V. HILL & CO., Inc., Trenton 1, N. J.

They Pause For Poses



Irving Alter of the Harry Alter Co. had his camera handy at the recent Fall Conference at French Lick Springs Hotel, Ind., and passed along these pictures to us. (Top) left to right: F. J. "Jim" Hood of Ansul Chemical Co. and Mrs. Hood; Joe Parker, genial manufacturers' agent from Georgia; E. A. Vallee of Automatic Products Co., and Mrs. Vallee. (Bottom) left to right; George Allen of Mueller Brass Co. and Mrs. Mary Gennett, who is carrying on with Refrigeration Supplies Distributor of Birmingham, Ala., while her husband "Bob" Gennett is in the Army; L. C. "Len" McKesson of Ansul Chemical Co. and Mrs. McKesson; Harry Phillips of the H. A. Phillips Co. and Mrs. Phillips.

opinion of WPB's plan for decentralization. It is planned to have more and more WPB forms processed in the various field offices scattered throughout the country. Many of the committee members felt that it would be undesirable to have applications for authorized orders processed in field offices unless these offices were supplied with a complete manual of instructions.

Proposed revisions to L-38 were discussed. These included some relaxation in the order by the addition of certain products to List "A" items which may be delivered unrestricted and by broadening the uses permitted for products on List "B."

It was also proposed (and incidentally by our WPB officials) that provision be made in L-38 for the resumption of the manufacturing of certain types of refrigeration equipment so that materials can be obtained under CMP.

Bear in mind such a plan for the gradual resumption of postwar production must receive approval of segments of WPB and government other than our own. Such foresighted discussion is, however, a very healthy sign.

The War Production Board has no clear grant of authority under the Second War Powers Act to take any action on matters involving postwar planning or reconversion. They are, of course, aware of industry's concern with such problems as reconversion, the disposal of surplus government owned equipment, the fate of present restrictions at the war's end, etc. We have been advised that various branches of WPB are exploring this matter to determine how it may best be handled, as for example: through existing industry committees or new agencies or committees.

We must, of course, bear in mind that the present industry advisory committees were appointed for the purpose of securing advice from industry on war production and giving industry a voice in the management of the war effort. Let us not forget that winning this war is our biggest and most important job.

In conclusion, let me again assure you that your Industry Advisory Committee is now given every opportunity to advise by WPB and that its members are making a sincere and strenuous effort to represent you. I sincerely hope that you will consider this committee as your representatives and appraise them of your particular problems and opinions so that they may do a better job of serving you and the industry.

C. A. Smith Promoted By Westinghouse

EAST PITTSBURGH, Pa.—C. A. Smith has been appointed assistant to Thomas I. Phillips, vice president of the East Pittsburgh Divisions of Westinghouse Electric & Mfg. Co., announces W. G. Marshall, vice president of industrial relations.

Manager of factory service here prior to his appointment, Mr. Smith has been with the company for 51 years. He joined Westinghouse in 1892 as an apprentice, and was successively assistant foreman, general foreman, assistant superintendent, superintendent, and division manager.

New Kelvinator Adv. Reports on Progress

DETROIT—Nash-Kelvinator Corp. will interrupt its current advertising with a double-page spread to appear in leading weekly magazines on the second anniversary of Pearl Harbor designed as a report to the public on the company's "outstanding progress in war production" since its last report, according to C. J. Coward, in charge of the current advertising program.

"Within the last several months, Nash-Kelvinator has become one of the world's largest producers of aircraft propellers," Mr. Coward said. "The company has also received a contract to build Sikorsky helicopters for the Army Air Forces, and it has recently been announced that our 2,000-hp. supercharged Pratt & Whitney engines used with such success on the Corsair are also being used to power the Navy's newest and deadliest sky-fighter, the Hellcat. These and similar achievements are mentioned in this one-time insertion."

The advertisement will appear in "Saturday Evening Post," "Life," "Collier's," "Time," "Newsweek," "United States News," "Business Week," "Fortune," and "Nation's Business."

In accordance with the Nash-Kelvinator policy of "previewing" as much as possible of its merchandising and advertising for the benefit of its dealers, a special version on the same story is the subject for an advertisement released to appliance trade papers during November.

Govt. Agencies Look to Industry Advisory Committee for Help, Says Schellenberg

(Concluded from Page 18, Column 5)

diate attention the Industry Advisory Committee can call a meeting through a three-man committee of its members appointed for this purpose.

In order to give you a picture of what takes place at an Industry Advisory Committee meeting let me very briefly outline for you what transpired at our last meeting.

(A) Industry members were asked to criticize the latest amended P-126 and to comment on its operation in the field. There were certain comments made on specific provisions of the order, in particular the provisions regarding inventory. In general, however, it was felt that the order was reasonably satisfactory and was more liberal and helpful to service agencies than the previous one.

(B) Proposed changes to the "Freon" Order M-28 were discussed with the industry members—the present order is to be completely rewritten. The two principal changes will be, the inclusion of the Industry Advisory Committee's recommendations regarding installations which should be allocated "Freon-12" (and not forced to convert to another refrigerant), and the proposal to allocate "Freon-12" for civilian MRO to contract agents in accordance with a quota system, leaving it to the contract agents to equitably distribute the "Freon-12" allocated to them to their respective suppliers. No "Freon-12" can be delivered by a supplier except on a purchase order bearing a "certificate," as outlined in the order.

Incidentally, a separate "Freon" section is being established with Pete Charles as temporary chief.

(C) There was considerable discussion on whether the industry in whole or in part should be "scheduled," in line with the provisions of M-293. WPB has two men studying this problem in an attempt to get to the bottom of the situation and find the right answer. It was the opinion of the industry members that any delays in production by manufacturers within the industry was due mostly to delays in deliveries of subcomponents.

The advice of the industry member was solicited with respect to the decentralization of CMP. A new and revised procedure for authorizing small users of controlled materials was explained to the committee.

Manufacturing concerns acquiring quantities of materials below certain established levels (in the case of carbon steel 149 tons per year) will receive a whole year's allotment instead of quarterly allotments.

For smaller concerns this will mean a considerable saving of time and effort since but one form will be submitted per year. This plan will eliminate approximately 150 of our industry's manufacturing concerns from the quarterly allotment list.

The committee was asked for its

William Lescaze, architect, is credited with the first modern skyscraper (for the Philadelphia Savings Fund Society), and the first use of glass brick in a facade. Outstanding examples of his work include Columbia Broadcasting's Hollywood Studios, the Ansonia (Conn.) High School, and Longfellow Bldg., Washington, D. C.

FROM A PILOT SEAT...AND RUBBER-LIKE SAFLEX...SOLID COMFORT, MASS PRODUCED?

STRONG, lightweight pilot seats of plastics-bonded plywood now in quantity production for the U. S. Air Forces were the principal inspiration for this interesting suggestion for 194X by well-known, New York Architect William Lescaze.

Wartime success, however, in converting Monsanto's Saflex from its original function as a tough, resilient interlayer for safety glass into what amounts to a new and promising synthetic rubber, also interested Mr. Lescaze and led him to include Saflex in his "specifications".

Making use of war-stimulated bag-molding techniques, the chair Mr. Lescaze visualizes would be quickly and easily formed on inexpensive molds with little or no waste of material. It would be upholstered with a resilient, sponge-like Saflex and covered with a waterproof, washable, Saflex-coated fabric.

The sketches below illustrate details.

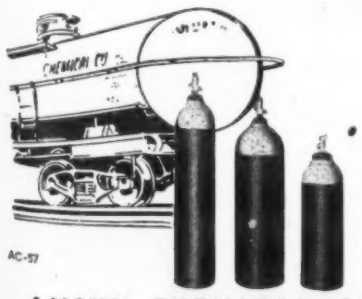
Wood plys, coated with a Resinox phenolic bonding resin, would be laid up on simple, inexpensive wood molds, tacked in place.

Molds would be covered with rubber bag and air evacuated to form snug fit. Entire assembly then goes into pressure chamber.

Removed from mold, chair is one tough, resilient, monolithic piece. Sponge-Saflex cushion would be slipped on frame like an envelope.

ANSUL
—SULPHUR DIOXIDE—

Used more widely because there are more reasons for its being used.



...in carloads or handy-size cylinders

ANSUL CHEMICAL COMPANY
Marinette • Wisconsin

PROMPT, EFFICIENT SERVICE THROUGH ANSUL JOBBERS AND SERVICE MEN NEAR YOU

Save Steel
FOR VICTORY BY RETURNING EMPTY DRUMS PROMPTLY.

The Broad and Versatile Family of Monsanto Plastics

(Trade names designate Monsanto's exclusive formulations of these basic plastic materials)

LUSTRON (polystyrene) • SAFLEX (vinyl acetal) • NITRON (cellulose nitrate) • FIBESTOS (cellulose acetate) • OPALON (cast phenolic resin) RESINOX (phenolic compounds)

Sheets • Rods • Tubes • Molding Compounds • Castings • Vuepak Rigid Transparent Packaging Materials

MONSANTO PLASTICS
SERVING INDUSTRY...WHICH SERVES MANKIND

FACTS TO HELP *YOU* SHAPE THE FUTURE

No one can say today with certainty that a chair such as Mr. Lescaze has suggested will ever be produced. It *is* certain, however, that wartime advances in plastics materials and techniques *will* exert a strong influence over the shape of many things to come. That is why it will pay you to add "The Family of Monsanto Plastics, A Guide for Product Designers," to your postwar file now. Its 24 pages are packed with facts on one of the largest and most versatile groups of plastics produced by any one manufacturer. Simply write: MONSANTO CHEMICAL COMPANY, Plastics Division, Springfield, Massachusetts.

Army Refrigeration Problems

By P. B. Reed

Electric Refrigeration and Air Conditioning Division, Servel, Inc.

Thermostatic Expansion Valve (Cont.)

A. How the Thermostatic Expansion Valve Controls Superheat

In the Oct. 25 issue it was shown that an evaporator was kept fully active at all times during operation of the condensing unit, by the thermostatic expansion valve (T.E.V.) controlling the rise in temperature (super-heating) of the vapor in a small portion of the evaporator. Let us now examine how the T.E.V. does this; how it maintains constant superheat of the refrigerant in the evaporator coil.

A typical T.E.V. is shown on Fig. 1. The liquid refrigerant enters at P, passed through the screen N, through a passage to the orifice seat T. Flow through this orifice is controlled by needle S set on a self-aligning swivel in the yoke Y. When the needle S is off the seat T liquid refrigerant flows into the body of the valve where its pressure is reduced and then out to the evaporator through the outlet U, which is attached to the inlet of the evaporator.

Operation of the condensing unit tends to reduce the pressure in the evaporator. This reduction of pressure against the bellows K allows the spring Z to push the yoke Y to the right, lifting the needle off the seat. An increase of evaporator pressure tends to close the valve.

Thus far it has seemed to act as an automatic expansion valve but now note the effect of the power element consisting of the bellows X, capillary G and feeler bulb M. This power element is usually charged with the same refrigerant as that used in the evaporator.

The feeler bulb is tightly attached to the outlet of the evaporator. If the evaporator outlet temperature is too high (too much super-heating of the vapor in the evaporator) the pressure in the power element is increased which expands bellows X which pushes the push-rod V to the right overcoming the pressure in the body of the valve and thus opening the needle, letting more refrigerant into the evaporator.

This additional refrigerant feeds farther into the evaporator and thus cools the feeler bulb which then in turn reduces the power element pressure. Thus the power element superimposes evaporator outlet temperature control on the pressure actuated part of the expansion valve.

The superheat adjustment of the valve is at nut C. Tightening down on this nut increases the pressure of the power element on the push rod and thus tends to feed more refrigerant (reduces the superheat). Loosening nut C feeds less refrigerant (increasing the superheat).

When the condensing unit stops, the pressure in the evaporator rises and this rise in pressure expands bellows K and closes the valve so that no refrigerant flows into the evaporator during the idle cycle—provided that the feeler bulb does not warm up faster or more than the evaporator.

If it is placed where warm air in the room can affect it, the pressure in the power element will rise above evaporator pressure and open the valve. This will allow refrigerant to flow into the evaporator where it will lie until the condensing unit starts again at which time it will be drawn back to the compressor in slugs of liquid, for there will be more in the evaporator than can be quickly evaporated.

These slugs of liquid refrigerant will at least cause noisy operation of the compressor, and are very likely to break suction or discharge valves or damage rods, pistons or other parts of the compressor. A refrigerating compressor is built with very close clearances and valve lifts and is designed to pump gases, not liquids.

B. Location of Feeler Bulb And Valve Body

The location of the feeler bulb is, therefore, most important. It must be in a location that is as cool as the evaporator even during the off cycle (when the condensing unit is not running)—not just cool or cold but as cold, otherwise the valve will not hold tightly during the off cycle, and liquid slugging will result.

Do not locate bulb outside the cabinet or where it will be warmed by room heat or heat from nearby devices.

Do not place bulb in airstream on blower units, especially units employing continuous fan operation.

Do not locate bulb on vertical runs of tubing.

If two T.E.V. valves are located near one another on separate evaporators, or separate passes of the same evaporator, do not locate the feeler bulbs so that one is affected by the other valve. This could occur if the distance between the two bulbs were so short that conduction from one would affect the other. Each bulb should be affected by its own valve only.

Fig. 1—Typical Expansion Valve

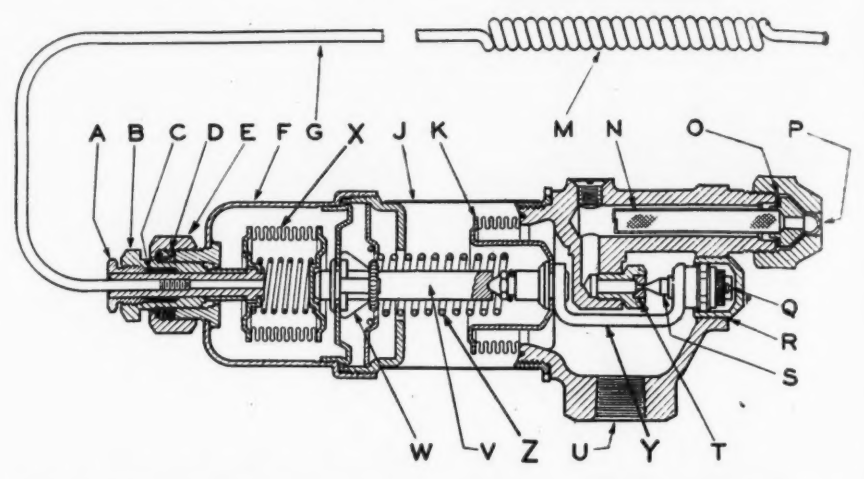


Fig. 1 shows the important parts of a typical thermostatic expansion valve as discussed in the accompanying article. Key to parts follows: A—Packing Nut, B—Packing, C—Adjusting Nut, D—Packing, E—Packing Nut, F—Bellows Housings, G—Capillary Tube, H—Sealed Joint. J—Stainless Steel Spacer, K—Body Bellows, L—Sealed Joint, M—Feeler Bulb, N—Inlet Strainer, O—Strainer Gasket, P—Inlet Connection, Q—Needle Swivel. R—Needle Plug, S—Needle, T—Seat, U—Outlet Connection, V—Push Rod, W—Anti-Chatter Device, X—Power Element Bellows, Y—Yoke-Carrying Needle, Z—Body Spring.

If the pressure drop across the evaporator is excessive (2 lbs. per sq. in. is usually regarded normal on medium temperature evaporators) the superheat control of the T.E.V. will be affected. In such cases a T.E.V. that is adjusted for a 6° superheat, may be unable to maintain closer than a 12° to 15° superheat. Except in extreme cases the use of an equalizer connection will overcome this trouble. The equalizer consists of a small tube, usually one-quarter inch O.D. copper tubing running from the T.E.V. body to the outlet of evaporator.

On multi-pass coils do not locate the bulb where it will be affected unduly by any one pass, or the other passes will be "starved."

An inserted bulb fitting will help in obtaining more sensitive response of the valve to temperature change of the vapor (a change of superheat) because the bulb is in intimate thermal contact with the refrigerant itself.

If a heat exchanger is used it is usually advisable to place the bulb between the evaporator outlet and the heat exchanger.

On submerged evaporators the bulb should usually be attached to the last coil of the evaporator just below the surface of the liquid. In this location it will probably control the superheat of the evaporator and will be kept cold during the off cycle.

The location of the T.E.V. is also important but the considerations for location of the valve body are quite different than for the feeler bulb. The body must be kept warm as compared to the evaporator coil or the feeler bulb.

If the body is kept cold the bellows in the power element may be colder than the feeler bulb and thus the refrigerant in the power element will condense in the bellows of the power element, taking control away from the feeler bulb.

For best operation the T.E.V. body may be outside the cabinet. The objection to this is the dripping of water from the "sweating" body. Sometimes the valve body is placed outside the cabinet and protected by insulation from "sweating" or in medium temperature installation by simply putting the T.E.V. in the refrigerated space, preferably the warmer part.

G. D. Harrod Forms Own Commercial Outlet

JACKSON, Mich.—G. D. Harrod, for a number of years commercial engineer for Consumers Power Co. here, has established Harrod Refrigeration Sales, a commercial refrigeration sales and service firm, at 201 N. Jackson St. here. The firm claims to be the largest commercial refrigeration outlet in Southern Michigan.

K & M Supply In NRSJA

CHICAGO.—The name of the K. & M. Supply Co. of Tulsa, Okla., was inadvertently omitted from the news story in the Nov. 8 issue of the NEWS giving the list of firms that were accepted into membership into the National Refrigeration Supply Jobbers Association at the recent annual meeting of the association.

Commercial and Domestic
REFRIGERATOR HARDWARE
NATIONAL LOCK COMPANY
ROCKFORD, ILLINOIS

Artic
(DU PONT METHYL CHLORIDE)
DU PONT
SERVICE NEWS
WAR-TIME NEWS LETTER

Dear Sir:

Priority Ratings on Methyl Chloride - Users should read carefully Order P-126 (revised on September 15, 1943) so that they may endorse their orders with any rating authorized by this revised order and by CMP regulations No. 5 or 5A.

If in doubt about what rating to apply, consult your source of supply.

When ordering 500 lbs. or more of Methyl Chloride, let us ship in available cylinders unless you cannot use some sizes. If we can use what we have on hand, you'll have a better chance of getting prompt shipment.

Handle cylinders and drums carefully. New containers are hard to get. Present supply must be kept in working condition.

Empty cylinders and drums promptly. Ship all empties back to us immediately - fast cylinder turnover increases your chances for prompt delivery.

You can help - and help yourself by so doing. How about it?

Very truly yours,
Thomas Coyle
THOMAS COYLE
Manager, Chlorine Products Division

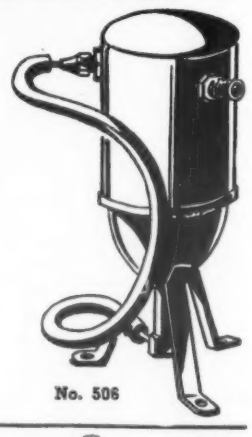
BETTER THINGS FOR BETTER LIVING . . THROUGH CHEMISTRY

HERMETIC REBUILDING
One of the largest hermetic rebuilding plants in the United States. Refrigeration units, parts and supplies. General Electric, Westinghouse, Grunow, Majestic and Crosley. Write for catalog on your letterhead.
GRUNOW Carrene Meters and Floats Repaired or Exchanged

No. 504

No. 505

$5.00 REBUILT
Old Meters and Floats must be shipped to us before exchange can be made.

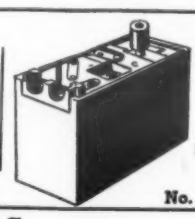

No. 506

No. 507

GRUNOW Purge Valve Needle $.25 EA.

GRUNOW Capillary Tube and Strainer

No. 508 $1.00 EA.


No. 509

GENERAL ELECTRIC ½ H.P. Relays $2.95 EA.

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SPECIAL FEATURE
Adjustable Brackets to Fit Standard Makes

No. 510
6½" Wide
13½" Long
12" High

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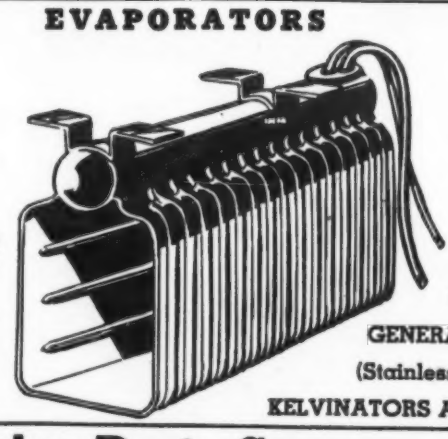
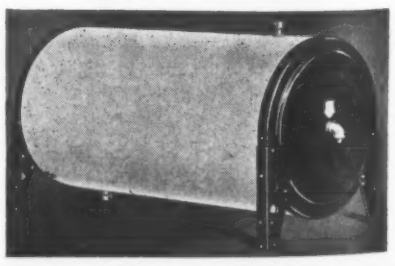
$8.95 EA.
OUTRIGHT NO EXCHANGE



ALL PORCELAIN Factory Rebuilt Guaranteed
Can Replace GENERAL ELECTRIC (Stainless Steel Type) KELVINATORS AND OTHERS

Service Parts Company
2511 Lake St., Melrose Park, Ill.

"DAY & NIGHT"
STORAGE TYPE TANKS SAVE SPACE



Compact "Day & Night" Storage Units, such as the Model CE-25 shown above, may be installed any place . . . on walls or ceilings . . . or integral with condensing unit . . . wherever cold water is required for drinking, jacket cooling, photographic processes, cooling welding tips, etc. A modern Scuttlebutt for shipboard use. Supplied on storage capacities from 6 to 100 gallons.

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DAY & NIGHT MFG. CO.
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ST. LOUIS R. H. Spangler, 3331 Market St. · DECATUR, GA. J. E. Parker, 228 2nd St.

Cost Figures on Transporting Frozen Food by Air Doubted

Carrier Corp.
Syracuse, N. Y.

Editor:

I read with much interest the talk given by Prof. Sleeter Bull of the University of Illinois at the recent convention of the National Frozen Food Locker Association—on frozen food lockers vs. individual frozen food storage units for homes—as reported in the Oct. 11, 1943 issue of AIR CONDITIONING & REFRIGERATION NEWS under the headline "Locker Men Told They Face Threat in Home Freezer Unit."

Prof. Bull is to be complimented on having given some serious and forward looking thought to this matter.

Some of the figures given in the article on the cost of air freight do not add up and could, I believe, lead to erroneous conclusions.

In the fifth paragraph of the article, on page one a rate of 10 cents per hundred pounds from Boston to Chicago (roughly 1,000 air line miles) is given—which is the equivalent of one-fifth cents per ton mile based on a 1,000 mile haul.

On page nine, under the heading "Cost of Air Freight," a figure of 10 to 14 cents per ton mile is given, which would seem more probable as an air freight rate when it is considered that railroad car-load freight averages out at approximately one cent per ton mile.

Also under the heading "Cost of Air Freight" the following statement is given, "Cargo planes can carry un-mixed freight at a cruising speed of 200 miles per hour for about 10 cents a ton mile if loaded to capacity or for 14 cents a mile if loaded to 65 to 70% capacity. On the basis of the latter figure, it would cost 70 cents a hundred to ship frozen fish from Boston to Champaign, as compared with $1.32½ via rail. And the freezing would cost nothing." Actually the cost of air freight at 14 cents per ton mile and on the basis of 1,000 air line miles from Boston to Champaign would be $7.00 per hundred pounds instead of 70 cents per hundred pounds.

As stated previously, I believe the figures given in the article could lead to erroneous conclusions as to the part air line transportation might play in the freezing and transportation of food—postwar.

Roy Conrad

Regular Production Items Doubled In War, Alco Finds

ST. LOUIS—In spite of heavy contracts for new war products not manufactured by the company before, the output of its standard products, about 30 basic refrigeration controls, for the armed services, the Maritime Commission and for civilian requirements has approximately doubled in the last two years, reported Arthur B. Schellenberg, president of the Alco Valve Co., St. Louis, speaking at the company's annual War Rally held recently at the Luther T. Ward Junior High School auditorium.

With current total production running about four times the 1941 dollar volume, Alco valves have been installed in almost every ship, whether Navy or Maritime, that has gone down the ways for many months, supplied for many land based refrigeration system, hospital equipment, and other new and increased uses, as well as essential civilian requirements.

The accompanying chart, copied from a large poster board exhibited at the Rally, illustrates the increase and compares the production of new war products and standard products, and emphasizes the fact that refrigeration controls have found wide use in the war effort.

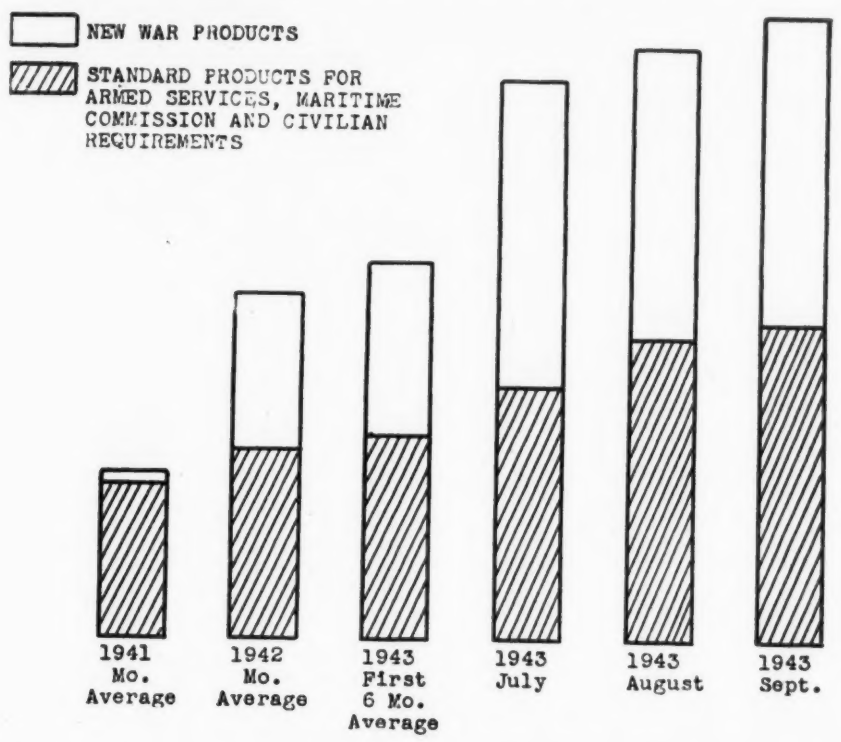
Dr. C. Oscar Johnson, prominent clergyman, paid glowing tribute to those Americans who have given their lives in the war, and said he would be in the armed forces if his draft board hadn't given him a 5-B classification: Baldness, bifocals, bridgework, bulges and bunions.

Other platform guests were: Major Harold J. Booth, Army Air Forces, Lieut. Comm. H. B. Freeman, Lieut. (s.g.) Nate L. Crabtree, Lieut. (j.g.) E. G. McNeil, of the Navy, Ensign Dorothy A. Williams, of the Waves, and Mayor Matt Fogerty, of University City. Richard S. Dawson, general sales manager of Alco, presided.

Four employes were given 10-year service awards, three were given five-year awards, and 69 one-year awards.

The Navy picture, "Life and Death of the Hornet," and the Army's "War on Wheels," were shown.

How Alco Production Is Split



Note how Alco's refrigeration control production has increased to meet the demands of modern warfare.

Northern Buys Building

NEWARK, N. J.—Northern Air Conditioning Corp. has purchased the building it has occupied as tenant for five years at 21-23 Central Ave., this city, according to announcement by R. F. Perrott, president of the concern. It is a three-story structure.

WPB Gauge Committee Named

WASHINGTON, D. C.—A. N. Rose of the J. P. Marsh Co., Chicago, and W. Ziegler of the U. S. Gauge Co., New York City, are included on the advisory committee recently appointed by the War Production Board for the dial pressure gauge industry.

Dealers in 5 Areas Get More Stoves

WASHINGTON, D. C. — Increased allowable inventories of all types rationed stoves have been extended to dealers and distributors in five additional areas.

The areas affected by this increase cover OPA Region I—Boston (New England); Region IV — Atlanta (Southeastern States); Region V—Dallas (South Central States); Region VI—Chicago (Midwestern States); Region VII—Denver (Rocky Mountain States). Recently an allowance inventory increase was granted to dealers and distributors in OPA Region VIII covering the Far West.

OPA has found it necessary to increase allowable stove inventories of dealers and distributors so that they may operate more effectively under the increased monthly stove quotas—the number of stoves which can be bought each month and for which purchase certificates are issued by local War Price and Rationing Boards.

To care for the greater demand resulting from the larger stove quotas which have recently been allotted, dealers and distributors must have the larger working inventories allowed under today's action.

The percentages by which the allowable inventories are increased vary among the OPA districts in the regions and also by stove types. They are based on reports of proved need received in the national office from local OPA rationing boards. These reports show the number of applications for specific kinds of stoves made at each board in the areas during the past few months.

To determine the size of the inventory increase, local boards will multiply by the appropriate percentage the dealer's or distributor's allowable inventory for each stove type granted at the time of registration.

The percentage increases to be used for each OPA district and for each type of stove follows:

REGION I

BOSTON: **Coal or Wood Heating Stoves**—Augusta, 50%; Concord, 50; Montpelier, 100. **Oil Heating Stoves**—Hartford, 200%; Augusta, 100; Boston, 150; Concord, 150; Providence, 100; Montpelier, 100. **Coal or Wood Cooking Stoves**—Augusta, 50%; Montpelier, 50. **Oil Cooking Stoves**—Concord, 50%. **Gas Cooking Stoves**—Hartford, 50%; Augusta, 50; Boston, 100; Concord, 50; Providence, 150; Montpelier, 100.

REGION IV

Atlanta: **Oil Heating Stoves**—Montgomery, 50%; Jacksonville, 100; Jackson, 50; Columbia, 50. **Gas Heating Stoves**—Montgomery, 50%; Jacksonville, 50; Savannah, 50; Jackson, 100; Columbia, 50; Roanoke, 50. **Coal or Wood Cooking Stoves**—Raleigh, 50%; Richmond, 100; Roanoke, 50. **Oil Cooking Stoves**—Montgomery, 50%; Jacksonville, 50; Atlanta, 50; Savannah, 100; Jackson, 50; Raleigh, 100; Columbia, 50; Richmond, 50. **Gas Cooking Stoves**—Birmingham, 50%; Montgomery, 50; Jacksonville, 50; Atlanta, 50; Savannah, 100; Jackson, 50; Charlotte, 50; Raleigh, 50; Columbia, 50; Memphis, 50; Nashville, 100; Richmond, 50; Roanoke, 50.

REGION V

Dallas: **Coal or Wood Heating Stoves**—Kansas City, 50%; St. Louis, 50. **Oil Heating Stoves**—Little Rock, 50%; Wichita, 50; New Orleans, 50; Shreveport, 50; Kansas City, 50; Oklahoma City, 100; Tulsa, 50; Dallas, 100; Fort Worth, 100; Houston, 50; Lubbock, 50; San Antonio, 50. **Gas Heating Stoves**—Little Rock, 50%; Wichita, 100; Shreveport, 50; Oklahoma City, 100; Tulsa, 100; Dallas, 50; Fort Worth, 50; Houston, 50; Lubbock, 100; San Antonio, 100. **Coal or Wood Cooking Stoves**—Lubbock, 50%. **Oil Cooking Stoves**—Little Rock, 150%; Shreveport, 100; Oklahoma City, 50; Tulsa, 50; Dallas, 50; Fort Worth, 50; Houston, 50; Lubbock, 50; San Antonio, 50. **Gas Cooking Stoves**—Wichita, 50%; New Orleans, 50; Shreveport, 50; St. Louis, 50; Oklahoma City, 100; Tulsa, 100; Dallas, 50; Fort Worth, 100; Lubbock, 50; San Antonio, 100.

REGION VI

Chicago: **Coal or Wood Heating Stoves**—Springfield, 50%; North Platte, 50; Omaha, 50; LaCrosse, 50. **Oil Heating Stoves**—Chicago, 50%; North Platte, 200; Omaha, 50; Fargo, 50; Sioux Falls, 50; LaCrosse, 50; Milwaukee, 50. **Gas Heating Stoves**—Peoria, 50%; Springfield, 50; Sioux City, 50; Duluth, 50; North Platte, 100; Fargo, 100; Sioux Falls, 100; Green Bay, 50; Milwaukee, 50. **Coal or Wood Cooking Stoves**—Springfield, 50%; North Platte, 50; Omaha, 50; Sioux Falls, 50; LaCrosse, 50. **Oil Cooking Stoves**—Peoria, 50%; North Platte, 50. **Gas Cooking Stoves**—Chicago, 100%; Moline, 50; Peoria, 50; Springfield, 50; Duluth, 50; North Platte, 50; Omaha, 50; LaCrosse, 50; Milwaukee, 50.

REGION VII

Denver: **Coal or Wood Heating Stoves**—Boise, 100%. **Oil Heating Stoves**—Denver, 100%; Boise, 50; Helena, 150; Albuquerque, 100; Salt Lake City, 100; Cheyenne, 100. **Gas Heating Stoves**—Boise, 100%; Helena, 150; Albuquerque, 150; Cheyenne, 200. **Coal or Wood Cooking Stoves**—Boise, 100%. **Oil Cooking Stoves**—Boise, 100%; Albuquerque, 200; Salt Lake City, 100; Cheyenne, 200. **Gas Cooking Stoves**—Denver, 50%; Boise, 100; Helena, 100; Albuquerque, 150; Salt Lake City, 100; Cheyenne, 50.

Applications for adjustment may be made to the local boards at any time, OPA said. An adjustment will not be made, however, if the applicant has already obtained an increase in his allowable inventory as a result of a special application for adjustment or relief, except in two cases:

(1) If the previous increase was less than the increase authorized by today's action, he shall receive the difference between the previous increase and the amount authorized today.

(2) If the previous increase was greater than the increase authorized today, but when it was granted it was directed that the applicant should not thereby be precluded from receiving the benefits of a general increase.

FOR SALEM LOCKER PLANT OPERATORS

START YOUR PLANT OF TOMORROW—*TODAY*

After the war you will want a fully automatic locker plant—the kind where lockers travel on tracks to the refrigerator doors so patrons need not enter the cold chamber. Salem's Walk-In plants may be quickly changed to this automatic type after the war. Best of all, operators of Salem plants may learn the latest in plant operations at our schools, *free*. Write today.

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CORDLEY
Electric
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Ice Makers
KRAMER TRENTON Co.
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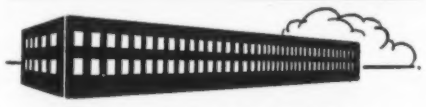
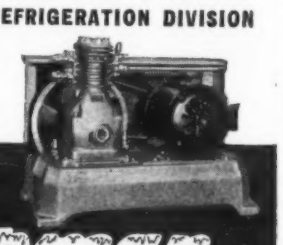


WAR INDUSTRIES NEED REFRIGERATION
The use of refrigeration in industry has been greatly accelerated by the war. In peacetime this expansion may logically be expected to continue. Write for literature.
GENERAL REFRIGERATION DIVISION
Yates American Machine Co. Beloit, Wis.



Lipman
AUTOMATIC REFRIGERATION

AMANA *Commercial* REFRIGERATION
Modern Display Cases
Coolers, Refrigerators
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ATTENTION
LEADING MANUFACTURERS OF SMALL REFRIGERATORS!
Swiss refrigerator manufacturer desires business connection with firm which can supply him with cooling machines for household refrigerators.
Please write to
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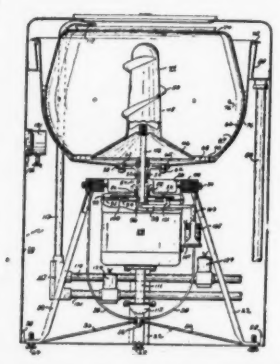
24-28 Aeschenvorstadt
Basel, Switzerland

PATENTS

Weeks of Oct. 19 & 26

2,331,897. DOMESTIC APPLIANCE. John B. Dyer, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Jan. 8, 1940, Serial No. 312,837. 7 Claims. (Cl. 68—23).



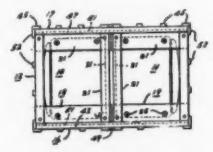
1. A washing machine including a shaft means, a tub rotatably mounted upon the shaft means, an agitator means mounted upon the shaft means within the tub, means for preventing the rotation of the tub, means for rotating the shaft means and the agitator means, and means rendered effective by the rotation of the shaft means in one direction for causing said means for preventing the rotation of the tub to prevent rotation of the tub, and rendered effective by the rotation of the shaft means in the opposite direction for causing said means for preventing the rotation of the tub to release said tub for rotation.

2,331,898. CIRCULATING SYSTEM, PARTICULARLY FOR REFRIGERATING APPARATUS. Nils Erland af Kleen, Stockholm, Sweden. Application Feb. 9, 1940, Serial No. 318,148. In Great Britain, Aug. 3, 1939. 3 Claims. (Cl. 62—125).

1. In absorption refrigerating apparatus having a boiler-absorber adapted to be alternately heated and cooled, heating means for said boiler-absorber, and a closed circulating system for a vaporizable liquid medium including an annular chamber in thermal exchange relation with said boiler-absorber and intermediate the latter and said heating means for the vaporization of the medium to cool the boiler-absorber; means for increasing the normal circulation of the medium through said system comprising

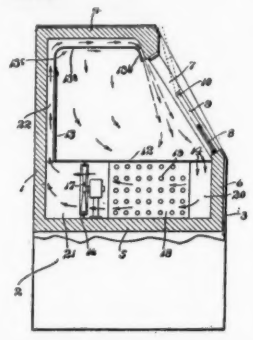
upwardly extending tubular heat conducting means in said vaporizing chamber in open communication at the lower end with the medium in said chamber and closed at the upper end, said tubular means being in thermal exchange relation with the heating means and with the boiler-absorber for the conduction of heat from the heating means to the boiler-absorber during the heating periods, said tubular means forming auxiliary vaporizing means for the medium circulating through said closed system during the cooling periods, the lower open end of said tubular means being sealed by the liquid medium in said vaporizing chamber, and the medium vaporizing in said tubular means periodically breaking said seal to circulate through the system.

2,332,016. REFRIGERATING APPARATUS. Edmund F. Schweller, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Nov. 15, 1941, Serial No. 419,342. 8 Claims. (Cl. 217—43).



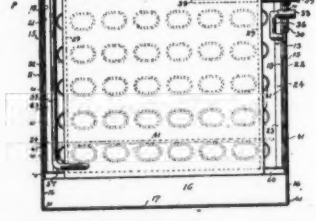
7. In a device of the character described comprising in combination, a crate including a top wall, upright side walls and two base members forming the bottom wall thereof, a plurality of cabinets within said crate, one of said cabinets being supported on one of said base members and the other of said cabinets being supported on the other of said base members, at least two opposed upright walls of said crate having a portion thereof secured to each of said base members, means engaging and forming a rigid connection between said cabinets for preventing relative movement therebetween within said crate, and said means including means cooperating with said rigid connection and secured to each of said two opposed upright crate walls beyond said base members for preventing movement of the cabinets relative to the crate.

2,332,174. DISPLAY REFRIGERATOR. Clifford B. Shreve, Niles, Mich., assignor to Tyler Pixture Corp., Niles, Mich., a corporation of Michigan. Application June 19, 1941, Serial No. 398,764. 7 Claims. (Cl. 62—89.5).



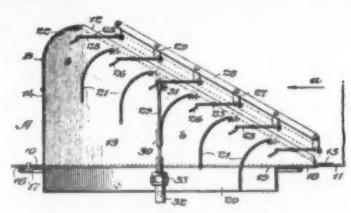
1. In a construction of the class described, a case having a compartment with a substantially horizontal bottom, a substantially vertical back, a top and a substantially vertical front of less height than the back, providing an entrance opening to the compartment between the upper edge of said front and forward edge of said top, a panel disposed lengthwise of and at the lower portion of said opening, arms extending from the ends of the panel, means for pivotally mounting the upper ends of said arms whereby said panel may be turned to an upper position, a horizontal shelf located and spaced above the bottom of said compartment, and means for circulating refrigerated air located below said shelf, combined with means for directing said air upwardly at the rear and to the upper part of said compartment and thence coming back to below said shelf at the forward portion thereof, whereby a continuous current of refrigerated air is passing downwardly and forwardly immediately back of said front opening, said shelf at its forward portion having passages for the return of the air.

2,332,349. REFRIGERATING UNIT. Harold A. Schulz, Richland Township, Bucks County, Pa., assignor, by mesne assignments, to Hydro Silica Corp., Gasport, N. Y. Application Nov. 16, 1939, Serial No. 304,723. 15 Claims. (Cl. 62—126).



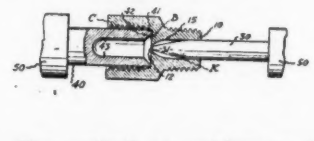
1. A refrigerating unit comprising a plurality of refrigerating plates each made of relatively spaced walls, said plates forming the sides of a rectangle endlessly surrounding a vertical passage, said walls being further spaced apart at the corners of the rectangle than at the side portions extending between the corners.

2,332,351. AIR FLOW CONTROL DEVICE. Maurice Serre, New York, N. Y., assignor to Anemostat Corp. of America, a corporation of Delaware. Application Oct. 10, 1941, Serial No. 414,536. 5 Claims. (Cl. 98—40).



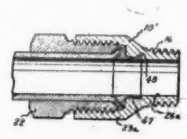
1. A device to be mounted in an air supply duct to control flow of air therethrough from said duct, said device comprising an open-ended casing to be mounted in said duct in operative relationship to an opening in a wall of said duct to provide a conduit for flow of air from said duct, fixed space dapart vanes in said casing having inner end portions disposed longitudinally with respect to the duct and in stepped relationship to each other to divide the air into a plurality of separate streams, said vanes having outer end portions disposed at substantially right angles to said inner end portions whereby the separate air streams are directed from the duct in a direction at substantially right angles thereto, a damper element individual to each of the spaces between said vanes, said damper elements being located adjacent to the inlet ends of said spaces, pivotal connections between said damper elements at the ends thereof and the side walls of said casing so that said damper elements are rotatable between open and closed positions with respect to the inlet ends of said spaces, said pivotal connections being disposed in a plane inclined with respect to said duct and said damper elements when in closed positions lying in substantially a common plane inclined with respect to said duct for smooth flow over the same of air flowing through said duct, and actuating means for said damper elements.

2,332,353. METHOD OF MAKING TUBE COUPLINGS. Henry D. Stecher, Lakewood, Ohio, assignor to The Weatherhead Co., Cleveland, Ohio, a corporation of Ohio. Application Oct. 2, 1941, Serial No. 413,266. 8 Claims. (Cl. 29-157).



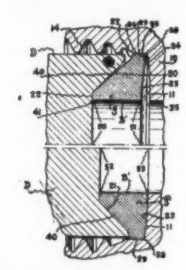
1. The method of making an inverted seat coupling member which consists in forming a cavity in said member, the bottom of which is flatter than the seat sought to be formed therein, forming an oppositely disposed tapered bottom cavity communicating with said first caving, and forcibly displacing the material of said tapered bottom part of said second cavity into said first cavity.

2,332,354. TUBE COUPLING AND METHOD OF MAKING SAME. Henry D. Stecher, Lakewood, Ohio, assignor to The Weatherhead Co., Cleveland, Ohio, a corporation of Ohio. Application Oct. 3, 1941, Serial No. 413,489. 2 Claims. (Cl. 29—148.2).



2. A flared tube coupling comprising a female member having an internally threaded cavity in which certain of the threads adjacent the base thereof are but partially formed as by a chamfered tap and having a separately formed conical seat secured in the base of said cavity in fluid-tight relation therewith with its conical surface having its greatest diameter substantially equal to the minor diameter of the threads of said cavity and adapted to receive the flared end of a tube to be coupled and positioning said flared tube end longitudinally spaced from at least the least formed of said partially formed threads, and an externally threaded male member having an internal conical surface at its forward end adapted to engage the flared end of the tube.

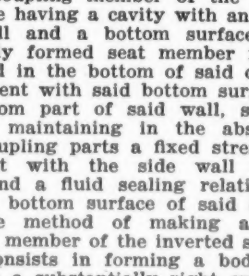
2,332,355. TUBE COUPLING AND METHOD OF MAKING SAME. Henry D. Stecher, Lakewood, Ohio, assignor to The Weatherhead Co., Cleveland, Ohio, a corporation of Ohio. Application Nov. 18, 1941, Serial No. 419,587. 7 Claims. (Cl. 29—157).



1. A coupling member of the inverted seat type having a cavity with an annular side wall and a bottom surface and a separately formed seat member radically expanded in the bottom of said cavity in engagement with said bottom surface and the bottom part of said wall, said seat member maintaining in the absence of other coupling parts a fixed stressed engagement with the side wall of said cavity and a fluid sealing relation with the said bottom surface of said cavity.

4. The method of making a female coupling member of the inverted seat type which consists in forming a body member with a substantially right cylindrical cavity, threading the walls of said cavity to a point closely adjacent the bottom thereof, forming a separate seat member having a dished bottom and a disproportionately convex top and having its marginal diameter closely approaching the internal diameter of the unthreaded portion of said cavity, inserting said seat member into said cavity to the bottom thereof, and forcibly pressing at least the mid-portion of said seat member in the direction toward the bottom of said cavity to flatten the bottom of said seat member and give conical form to the top of said seat member and spread the marginal portion thereof into radial engagement with the adjacent wall of said cavity.

2,332,368. Leslie D. Burtenshaw, Greenville, Mich., assignor to Gibson Electric Refrigerator Corp., Greenville, Mich., a corporation of Michigan. Application Aug. 2, 1940, Serial No. 349,701. 3 Claims. (Cl. 113—112).



1. The method of soldering two metal parts together, one of said parts being a tube, which comprises clamping said parts in juxtaposition with solid solder therebetween, applying heat to the solder

(Continued on Page 23, Column 2)

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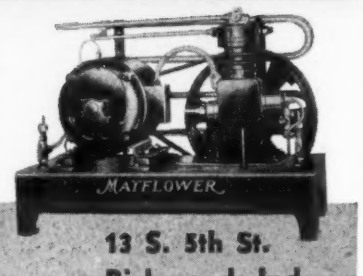

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FOR SALE: Long established refrigeration business in Los Angeles. Representing national manufacturer. $20,000 will handle. Retiring on account of ill health. Box 1485, Air Conditioning & Refrigeration News.

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USED CONDENSING UNITS. We want to buy some ½ and ¾ 110-220 volt 60 cycle methyl condensing units in good operating condition. TRILLING & MONTAGUE, 2401 Walnut St., Philadelphia 3, Pa.

USED EQUIPMENT WANTED: Air conditioning and refrigeration systems and machinery including self-contained units, coils, high-sides, shell and tube coolers and controls. We will purchase entire systems, especially interested in large sizes, both reciprocating and centrifugal. EMFCO 333 5th Ave., New York 16, N. Y.

WANTED—3 inch, 4 inch, 5 inch double ammonia self-contained units. Give complete details as to make, age, condition, and price. MARYLAND REFRIGERATION CO., 706 N. Howard St., Baltimore, Md.

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ALL AROUND DRAFTSMAN. Should be familiar with cabinet type refrigeration. Calculate heat loads. Layout heat transfer surface. Estimate costs. New York Metropolitan area. Good postwar possibilities. Write fully stating qualifications, age, salary expected, draft status. Availability statement required. Box 1487, Air Conditioning & Refrigeration News.

COMMERCIAL REFRIGERATION manufacturer has opening for man familiar with inspection, cycling tests, charging, etc. Experience and ability to handle men considered. Permanent position, city in Great Lakes area. Mention draft status. Box 1489, Air Conditioning & Refrigeration News.

REFRIGERATION ENGINEER for well-established manufacturing concern. Permanent position for one capable of postwar planning and designing. Give complete details regarding age, education and experience, replying to Box 1488, Air Conditioning & Refrigeration News.

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REFRIGERATION SERVICE ENGINEER. Unusual opportunity for refrigeration and air conditioning application engineer capable of making experimental installations in new fields and developing test information for sales and engineering departments. Ingenuity and analytical ability required. Applicant must have experience in installation, adjustment and service of refrigeration systems. Excellent future in postwar period. Apply in writing only, giving complete business history, references and draft status. Sales Department, AIRTEMP DIV., Chrysler Corp., Dayton, Ohio.

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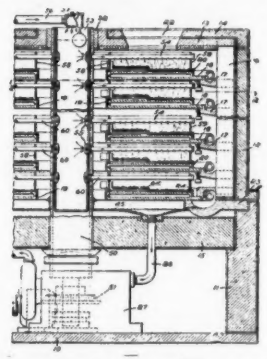
Patents (Cont.)

(Continued from Page 22, Column 4)

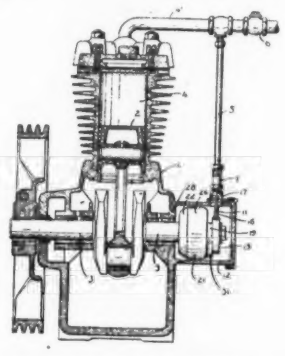
to melt the same, passing coolant through the tube while the heat is still being applied and after the solder has been melted to abstract heat from the solder faster than it is being applied whereby to cool and solidify the solder while maintaining the parts in juxtaposed clamped relationship, and subsequently releasing the clamping pressure from said parts while the solder is still in a solid state.

2,332,367. FREEZING FOOD PRODUCTS. Clarence Birdseye, Gloucester, Mass., assignor to Mechanical Research, Inc., Providence, R. I., a corporation of Rhode Island. Application April 27, 1940, Serial No. 331,991. 22 Claims. (Cl. 62—104).



1. The process of freezing a food product, which includes the steps of passing the product along and in contact with a horizontal refrigerated heat-conductive surface, meanwhile wetting both the surface and the product with a refrigerating liquid having a temperature lower than that of the product being frozen and higher than that of the said refrigerated heat-conductive surface.

2,332,372. COMPRESSOR UNLOADING MECHANISM. Paul Diserens, Summit, N. J., assignor to Worthington Pump and Machinery Corp., Harrison, N. J., a corporation of Delaware. Application Jan. 3, 1942, Serial No. 425,522. 7 Claims. (Cl. 230—29).

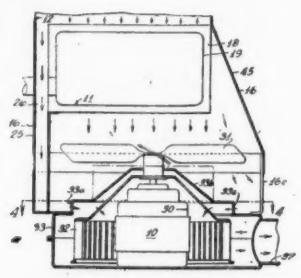


1. In an unloader for compressors, the combination of a compressor including a compression space, an operating shaft for the compressor, and a lubricating system, a valve housing having a passage open to said compression space and to atmosphere to permit unloading of the compressor, a valve in said housing seated to close said passage to atmosphere to load the compressor and unseated when the compressor, is not operating to unload the compressor, a cam for seating said valve and holding it in seated position, a hydraulic coupling comprising driving and driven parts connecting said cam and operating shaft whereby when the operating shaft reaches sufficient speed of rotation to set up coupled connection of said driving and driven parts of the hydraulic coupling the valve will be seated to load the compressor, means connecting said hydraulic coupling to said lubricating system whereby the hydraulic coupling will receive operating oil from the lubricating system, and tensioned means cooperating with the cam for applying tension to the cam to control the operation of the cam by said hydraulic coupling.

2,332,553. CAN INTENDED PARTICULARLY FOR FROZEN PRODUCTS. Edward L. Benedict, Philadelphia, Pa., assignor, by mesne assignments, to Crown Can Co., Philadelphia, Pa., a corporation of Pennsylvania. Application Aug. 2, 1940, Serial No. 349,708. 2 Claims. (Cl. 220—60).

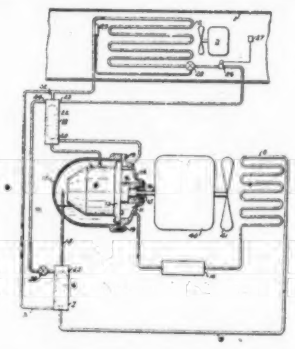
1. In combination, a container and a closure therefor, the container having an upwardly and inwardly directed tapered mouth portion with a bead on the upper edge thereof providing a substantially curved surface, and a closure having a skirt tapered to substantially conform to the taper of said mouth portion and overlying the same when the closure is in sealing position, said closure having a downwardly and inwardly inclined and circumferentially tapered sealing shoulder opposite the skirt and forming therewith a circumferential groove wedge-shaped in cross-section, the horizontal cross-sectional dimension of the medial portion of the groove being substantially the same as the cross-sectional dimension of the said bead whereby the curved surface of the bead will resiliently contact the shoulder in wedging engagement with the groove, and means for locking the closure upon the container, said means comprising a bead on the free edge of the skirt of the closure cooperating with a groove in the container.

2,332,707. AUTOMOBILE AIR CONDITIONING DEVICE. Howard J. Pindley, Shaker Heights, Ohio, assignor to Eaton Mfg. Co., Cleveland, Ohio, a corporation of Ohio. Application Jan. 16, 1941, Serial No. 374,661. 2 Claims. (Cl. 257—137).



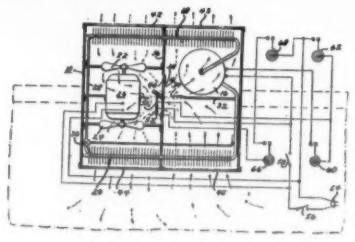
1. In a device for air conditioning a motor vehicle compartment, a heat-exchange core, a shell disposed around the core to define front and back openings at the corresponding faces of the core, a fan operable by driving means to move air of the vehicle to be heated through said core, a second fan driven by said driving means and enclosed in a separate blower housing, said driving means consisting of an electric motor concentrically nested within said second fan in fixed relation thereto and supported within the blower housing to drive both said fans in one direction with concurrently uniform air moving efficiency, a fresh air supply means including an air channel connected directly to an inlet in one end of said blower housing, a second inlet opening in the opposite end of said blower housing whereby said second fan will draw untempered air from one end of the surrounding blower housing and tempered air from the opposite end of the housing moved through the core by said first fan and discharged adjacent said second inlet opening in the housing, and manual valve means adjacent the connection of the fresh air supply means to the inlet end of said blower housing receiving untempered air adapted to control tempering of the air supply to one end of said blower housing whereby untempered and tempered air may be blended and moved by said second fan or only tempered air, selectively.

2,332,711. REFRIGERATING APPARATUS. Richard E. Gould, Oakwood, and Charles F. Henney, Dayton, Ohio, assignors to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Oct. 29, 1940, Serial No. 363,317. 7 Claims. (Cl. 62—115).



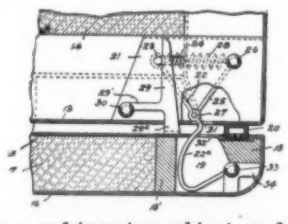
1. In combination, a compressor, a continuously running internal combustion engine for operating said compressor, a first evaporator, a second evaporator, a condenser, means for conveying liquid refrigerant from said condenser into thermal exchange with said compressor and thereafter in thermal exchange with refrigerant vapor leaving either one of said evaporators so as to recondense the refrigerant vaporized in thermal exchange with said compressor, and means for thereafter conveying said recondensed refrigerant to one of said evaporators.

2,332,730. REFRIGERATING APPARATUS. Andrew A. Kucher, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Oct. 30, 1939, Serial No. 301,866. 14 Claims. (Cl. 62—6).



1. Air conditioning apparatus for an enclosure having a window comprising in combination, a casing adapted to be mounted in a window of said enclosure, air circulating means within said casing, an air discharge opening for discharging air into said enclosure, an air intake opening communicating with the exterior of said enclosure, an air intake opening communicating with the interior of said enclosure, means for conveying air from either one of said intake openings to said air discharge opening, damper means for selecting either one of said intake openings, mean for lowering the wet bulb temperature of the air flowing from one of said intakes to said discharge opening, and means responsive to the outdoor temperature for controlling said wet bulb reducing means.

2,332,788. REFRIGERATOR DOOR HINGE. Karl W. Flocks, Washington, D. C., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Oct. 13, 1942, Serial No. 461,881. 6 Claims. (Cl. 16—166).

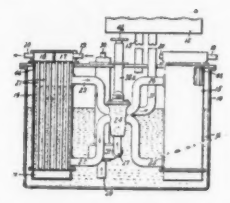


1. In a refrigerator cabinet, a door and hinge means connecting the door to the cabinet, said hinge means comprising a pair of hinge elements arranged in angular relation with their ends pivotally connected to one another at one end and their opposite ends respectively having a fixed pivotal mounting and a slidable pivotal mounting, means normally urging the slidable pivot towards the fixed pivot, one of said hinge elements being extended and pivotally connected or hinged to the door, and latch means engaging the door and said slidable pivot and normally holding the latter in extended position when the door is closed, opening movement of the door releasing the latch and permitting the slidable pivot to move towards the fixed pivot and thereby effect a substantially straight-line movement of the door away from the cabinet during initial opening movement of the door.

2,332,820. REFRIGERATION. Robert S. Taylor, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Jan. 10, 1940, Serial No. 313,181. 21 Claims. (Cl. 62—119.5).

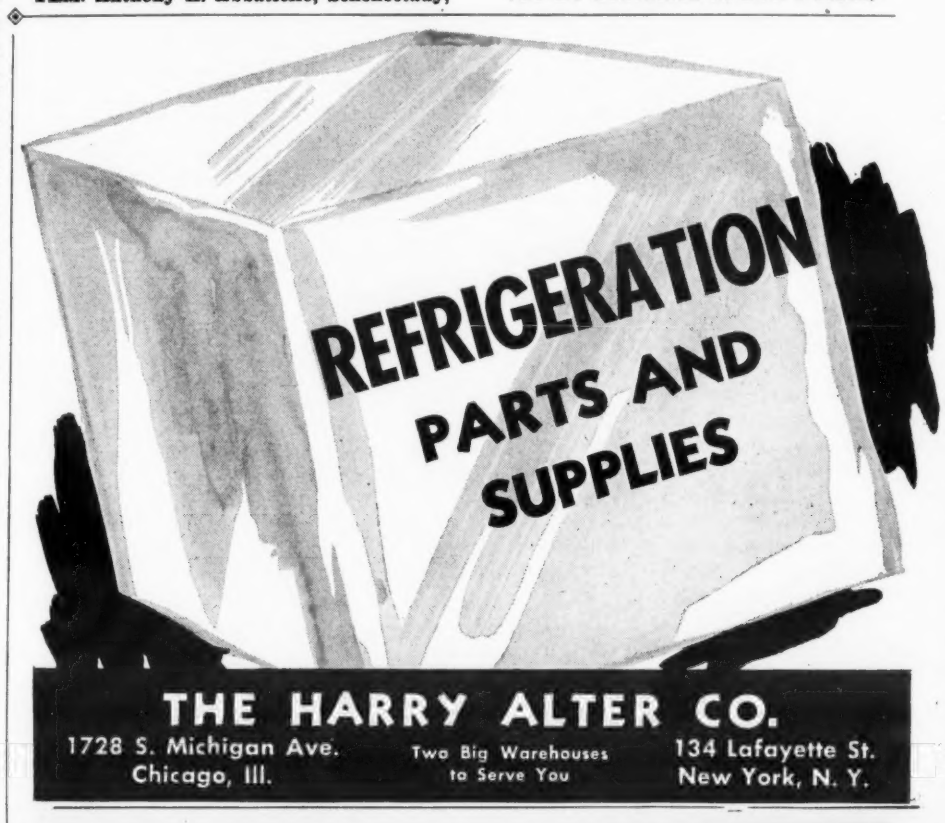
1. A refrigeration system including a generator, an absorber, an evaporator, a conduit for liquid from said evaporator to said generator, a conduit for liquid from said absorber to said evaporator, and conduits for conducting all the vapor from both said generator and said evaporator to said absorber.

2,332,882. HEAT EXCHANGER SYSTEM. Anthony A. Abbatiello, Schenectady, N. Y., assignor to General Electric Co., a corporation of New York. Application Feb. 5, 1942, Serial No. 429,667. 7 Claims. (Cl. 257—215).



1. Heat exchanger system comprising two surface type heat exchangers for alternate use, means including a valve mechanism for connecting either of the heat exchangers in series between a source of liquid and a consumer, means for actuating the valve mechanism to transfer operation from one heat exchanger to the other, and locking means associated with said transfer means normally to prevent transfer of operation from one heat exchanger to the other until such other heat exchanger is substantially filled with operating liquid.

(To Be Continued in Dec. 6 Issue)



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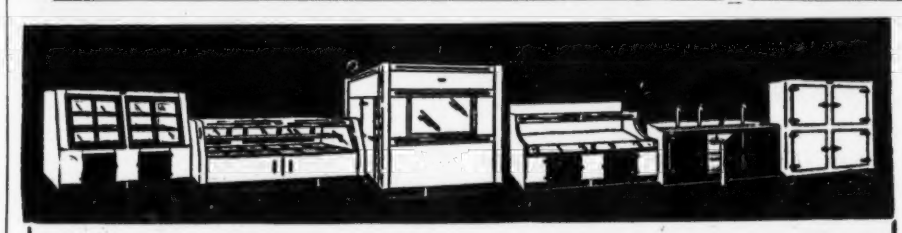
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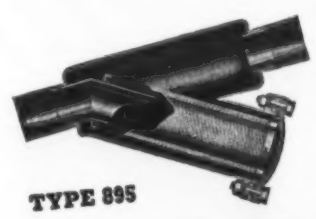
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No Seperate Records Needed Under L-63

(Concluded from Page 1, Column 4)

record of his sales and inventory of all kinds of supplies in the aggregate will be satisfactory. In preparing his sales record he should use net selling prices, including sales from consigned stock and excluding direct shipments. His inventory record may be based either on book inventory or physical count. Inventory valuations must be at cost and must include consigned stock. The sales and inventory data required by this paragraph must be preserved for a period of at least two years, available for inspection by authorized representatives of the War Production Board. This record keeping plan has the approval of the Bureau of the Budget pursuant to the Federal Reports Act of 1942. Subject to the approval of the Bureau of the Budget, the War Production Board may at any time ask for the submission of this data."

LIST A

"The types of material set forth below are not deemed to be supplies within the meaning of paragraph (a) (1). Accordingly, these materials may be excluded from the monthly report required by paragraph (e), and are not subject to the inventory restrictions required by paragraph (b), provided that sales of such materials are not included in computing maximum permissible inventory as defined in paragraph (a) (6).

(4) Replacement parts specially designed to fit only one model and brand of machinery or equipment, and adaptable to no other use: **Provided,** That in no event shall the supplier accept delivery of any such parts where his inventory thereof is, or will by virtue of such delivery become in excess of six times his sales of such parts during the second preceding calendar month."

Rules Issued on Canadian Priorities

WASHINGTON, D. C.—Basic rules governing the issuance of preference ratings and allotments for deliveries to be made into the Dominion of Canada have been issued, WPB has announced today. These rules are contained in Priorities Regulation No. 22.

Ratings and allotments for such deliveries will be authorized by WPB only upon the recommendation of the Priorities Officer of the Department of Munitions and Supply in Canada.

A standard form of certification appears in the regulation. This form is used in all cases where preference ratings and allotments are used in connection with deliveries to Canada. The regulation also informs suppliers of treatment to be accorded such orders.

Part 944—Regulations Applicable to the Operation of the Priorities System
(Priorities Reg. 22)

Deliveries Into the Dominion of Canada

§ 944.43 (a) Preference ratings or allotments for deliveries to be made into the Dominion of Canada from the United States will be authorized by the War Production Board only upon the recommendation of the Priorities Officer of the Department of Munitions and Supply in Canada.

(b) Any person in Canada authorized to use a rating or allotment number or symbol may do so by endorsing the following certification on his purchase order:

The undersigned purchaser certifies, subject to the penalties of section 15 of the Canadian Wartime Industries Control Board Regulations, to the seller, to the Canadian Priorities Officer, and to the War Production Board, that, to the best of his knowledge and belief, the undersigned is authorized, under applicable Canadian orders and under applicable War Production Board regulations or orders, to place this delivery order, to receive the item (s) ordered for the purpose for which ordered, and to use any preference rating or allotment number or symbol which the undersigned has placed on this order.

(c) The certification shall be signed manually or as provided in Priorities Regulation 7 (§ 944.27) by an official duly authorized for the purpose.

(d) After Oct. 31, 1943, the above certification must be used instead of any other certification where a rating or allotment number or symbol is used by a person in Canada. Any certification which is specified for any other purpose by any regulation or order (except one requiring administrative action such as an allocation or express authorization) may be omitted from purchase orders endorsed with the above certification.

(e) Purchase orders bearing the above certification must be given the same effect by suppliers in the United States as orders carrying preference ratings or allotment numbers or symbols and originating within the United States.

(f) Suppliers in the United States who receive rated orders for delivery into the Dominion of Canada bearing the above form of certification may extend the ratings to the same extent as ratings originating in the United States, but must use the regular form of certification provided for use within the United States.

(g) This regulation does not apply to materials exported directly to agencies of the United States Government in Canada.

This group of Washington and industry headliners familiar to the refrigeration field graced the speaker's table at the recent Fall Conference at French Lick, Ind. Left to right: Frederick Smith, Chief, Special Equipment Branch, General Industrial Equipment Division, WPB; R. H. Luscombe, Penn Electric Switch Co., and president, R.E.M.A.; Sterling Smith, Chief Refrigeration Section, WPB; Charles Logan, president, A.S.R.E.; and Harry Alter, Harry Alter Co., president, N.R.S.J.A.

OPPORTUNITY FOR SALE . . .

"These are times that try men's souls." Tom Paine said it, and his words are as applicable today as they were in 1776. It is in such times as these that men . . . and organizations of men . . . prove their metal.

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How well you utilize your opportunity will depend partly upon you . . . partly upon the manufacturer who is your partner. Here at Bush we're playing a major role in developing the new products and new markets which will constitute the foundation of your opportunity. This development . . . now confined to the Army, Navy, Air Forces, Merchant Marine and essential civilian needs . . . has already reached staggering proportions . . . holds unlimited potentials. Your opportunity is growing . . . growing . . . growing!

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Lay your plans today to accept this opportunity with open arms . . . to be ready when the knock comes.

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